

1932 Sales, Expansion Programs Made at Conventions

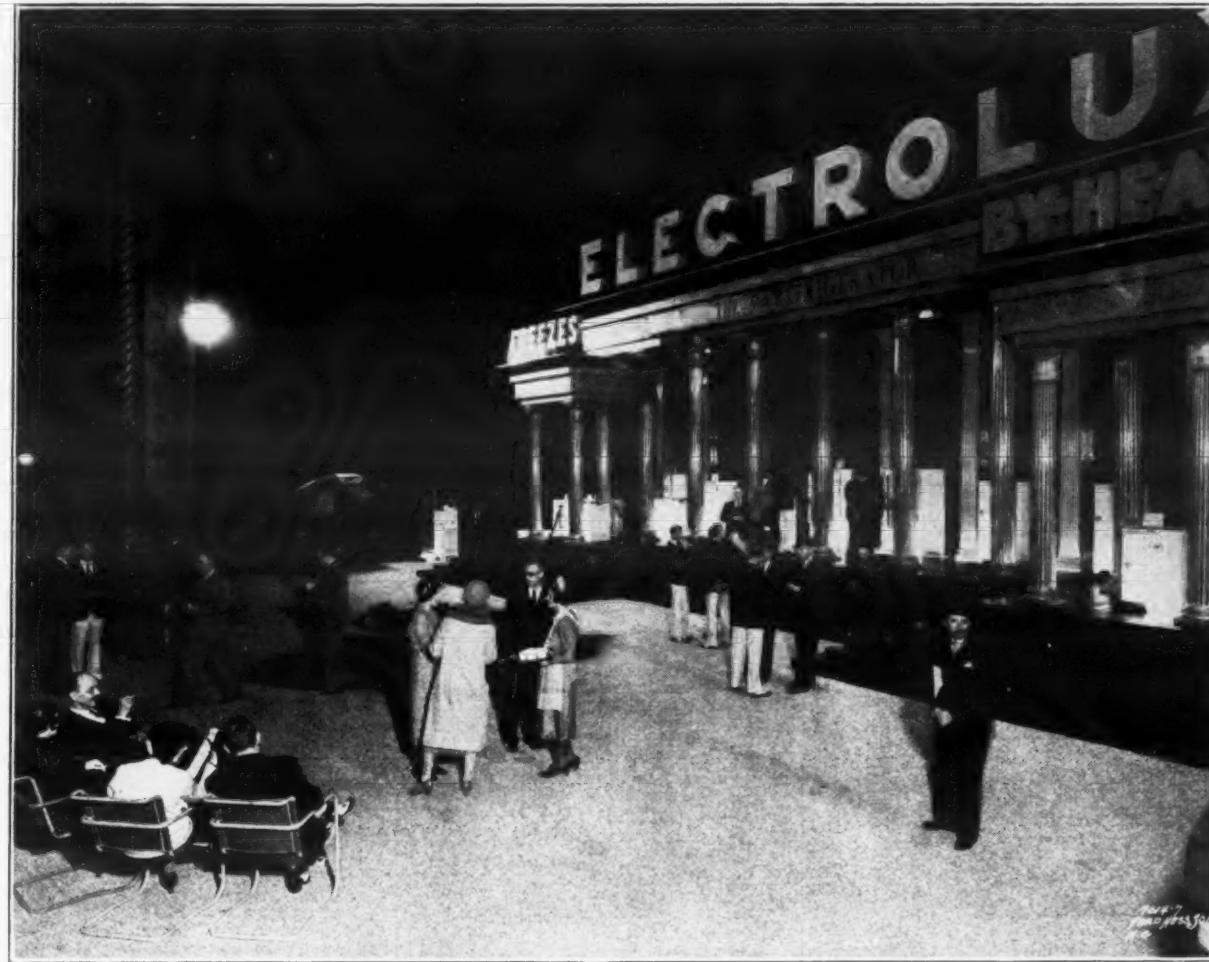


Plans for extension of sales efforts during 1932 were made by distributors of Norge electric refrigerators at a conference with executives of the company at a meeting at French Lick, Ind.

Gas Spokesman



N. T. Sellman (left), director of sales and utilization, Consolidated Gas Co., New York, and William DeFreitas, director of dealer co-operation for the same concern, attended the recent convention of the American Gas Association. Mr. Sellman read a paper on air conditioning through the use of gas.

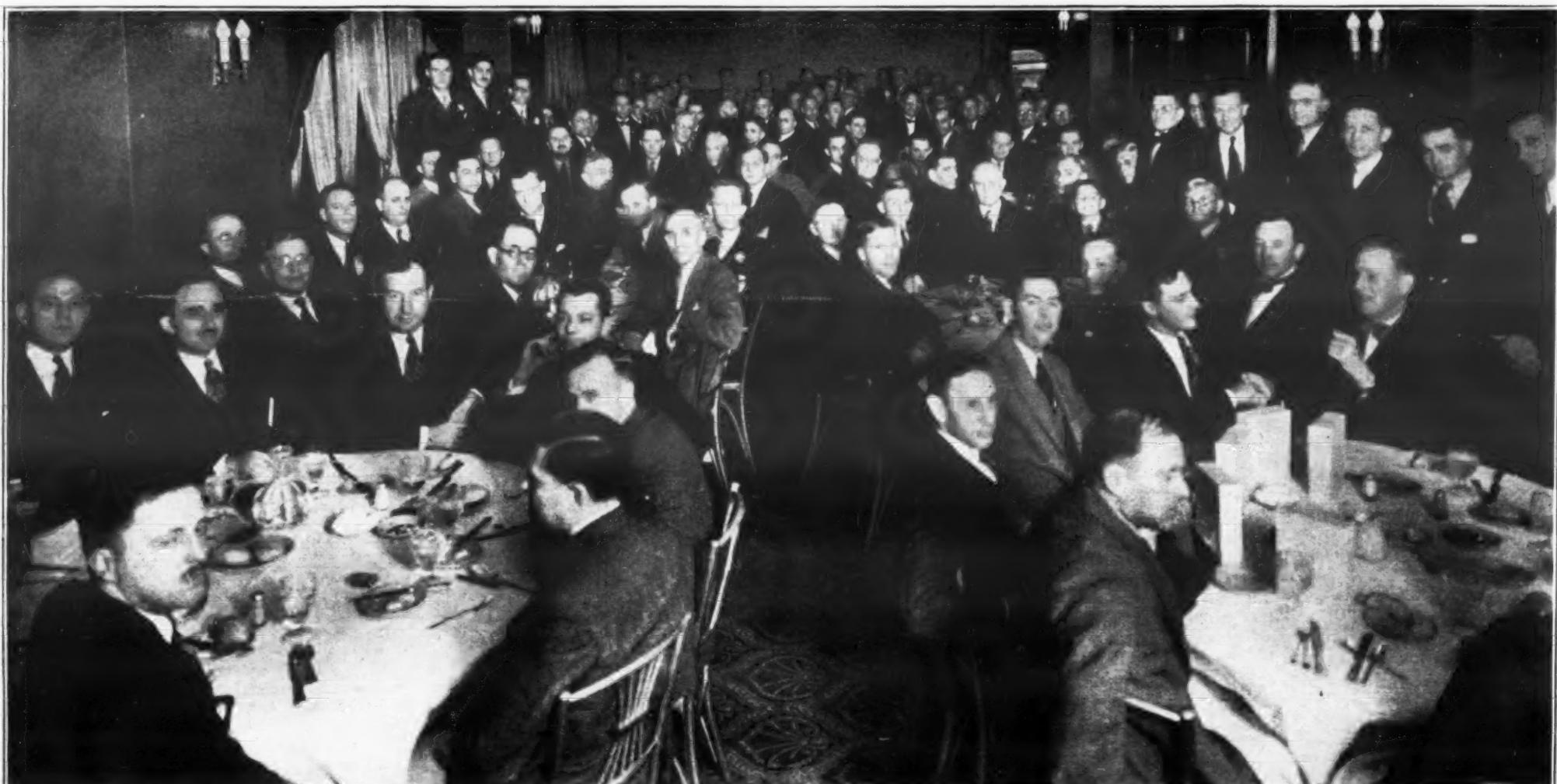


All eyes were on the Electrolux exhibit at the American Gas Association convention in Atlantic City. The giant display, which was placed on the stage, was modeled after the ancient Temple of Zeus at Pergamon.

On the Boardwalk



Hugh Cuthrell (left), new business manager, Brooklyn Union Gas Co., Brooklyn, and James Howley, manager of dealer cooperation for the same company, were in attendance at the gas convention. Mr. Cuthrell explained the utility sales methods used by his firm and methods of maintaining dealer relationships.



Announcements of an increased production schedule for 1932 and of plans to increase factory space were made to Mayflower electric refrigerator distributors at a sales meeting in Dayton recently.

Merchandising Section

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BIGGER PROGRAM MAPPED OUT FOR 1932 BY ELECTRIC REFRIGERATION BUREAU

DUNNING LEADS DISTRIBUTORS IN G. E. CAMPAIGN

Presidential Race Close; '25 Plan' Brings Sales Increase

CLEVELAND, Ohio—Arthur S. Dunning, General Electric refrigerator distributor in Duluth, Minn., who has been among the leaders in the Monitor Top election campaign since the contest began in September, held a commanding lead in the race for president of Refrigeraria at the last tabulation of reports.

Distributor Dunning, C. L. McCrea, Washington, D. C.; W. D. Alexander of Atlanta, Ga.; Fred Cushman of Cleveland, Rex Cole of New York, J. O. Morris of Albany, and R. Cooper, Jr., Chicago, have been fighting a grim battle for the lead in this presidential race since the opening of the campaign.

At the beginning, Alexander stepped into the lead and held it for about three weeks.

During the second week, however, Dunning climbed into second place and has maintained a firm grasp on second or third places until this week when he jumped into the lead.

In addition to Dunning and other distributors mentioned, the number of votes gained during the last 15 days are a direct result of the introduction of "The Twenty Five Plan," company officials say.

"The 25 plan, conceived by A. C. Mayer, manager of the merchandising division of the refrigeration department, is a method whereby salesmen are required to make 25 calls every morning with instructions not to sell refrigerators but to sell appointments for the afternoon or evening. During this time most sales of General Electric refrigerators are made.

A feature of the sixth week of the 10-week election campaign, in addition to Dunning's spectacular rise, was the advancement of Philip H. Harrison, distributor in Newark, N. J., from sixteenth to seventh place as a result of the campaign.

This canvassing was carried on during what distributor Harrison was

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GIBSON OFFICIAL RETURNS FROM PACIFIC COAST TOUR

GREENVILLE, Mich.—Frank S. Gibson, Jr., vice president in charge of sales of the Gibson Electric Refrigerator Corp., recently completed a trip through the west, which took him to the Pacific Coast.

At Los Angeles, Mr. Gibson was the guest of honor at a banquet given by the Platt Music Co. and attended by over 600 of its executives and salesmen.

At this banquet Mr. Gibson gave a review of the past record of the Gibson Co. and outlined the developments of his company for the coming year.

MELLON ELECTED MEMBER OF WESTINGHOUSE COMMITTEE

EAST PITTSBURGH—At the meeting of the board of directors of the Westinghouse Electric & Mfg. Co., held Wednesday afternoon, Oct. 28, W. L. Mellon was elected a member of the executive committee to succeed the late Harrison Nesbit.

GEIGER NAMED MANAGER OF PEIRCE-PHELPS SALES

PHILADELPHIA—William J. Geiger has been appointed sales manager in charge of refrigeration for Peirce-Phelps, Inc., distributor of Majestic electric refrigerators and radios.

'On the Top'



ARTHUR S. DUNNING

Duluth distributor leads for president in G. E. political campaign.

FALL SALES CONTEST STARTED BY LIPMAN

ROCKFORD, Ill.—Distributors and salesmen of the General Refrigeration Co. are competing in the Lipman Jockey Club handicap which started Oct. 26 and will close Dec. 31.

Company officials expect that more than \$5,000 in cash prizes will be disbursed during the race. Prizes are given to salesmen leading at the end of each furlong, to the distributors in the lead at the end of each furlong, and for individual sales.

Quota factors which come into play in the handicap are based on sales of individual salesmen and dealers for the first eight months of the year. Lengths are awarded on the basis of units sold and multiplied by the quota factor.

Twelve distributors are entered in the contest. Leaders at the end of each of the first four laps in the stable owner's race will receive \$15, second place owners, \$10, and third place, \$5. Each of the next three laps brings \$25, \$20, and \$15 for the three leaders and \$10 for the other owners to finish the furlong.

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OAKLAND WOMAN WINS KELVINATOR LETTER CONTEST

Winners of Comparison Award Announced By Judges

DETROIT—Mrs. Edward P. Holmes, Oakland, Calif., will receive a check for \$5,000 as first prize in the Kelvinator Comparison contest which was held in connection with the recent Kelvinator Derby sales contest.

The decision to award Mrs. Holmes the first prize on the basis of her letter of 200 words was made by a committee of judges which included Katharine Fisher, director of Good Housekeeping Institute; B. C. Forbes, publisher of *Forbes* magazine, and J. E. Davidson, president of Nebraska Power Co., and chairman of the national Electric Refrigeration Bureau.

Second prize of \$1,250 went to Mrs. W. H. Pickett, Atlanta, Ga.

Thousands of letters were received in the contest and the letters were judged on content only, art work and added features being eliminated before they

(Concluded on Page 13, Column 1)

Burglar Alarm

NEW BRITAIN, Conn.—Electric refrigeration plays a double role in the offices of the Gulf Refining Co. here.

A water cooler which normally serves only to provide cool drinks for the employees acted as a burglar alarm on the night of Oct. 23, frightening off three bandits who had tied up a watchman and were attempting to open a currency-filled safe.

The hum of the unit was heard by the trio during a temporary lull in their sledge-hammer welding, and all three took to their heels.

"Beat it, there goes the burglar alarm," one of the bandits is said to have exclaimed. No money was taken, although the safe contained \$2,000.

"Despite this, we do know, however,

Bureau Manager



GEORGE BROWN

New permanent manager of Electric Refrigeration Bureau.

MEN BIG FACTOR IN SALES, DAILY FINDS

CLEVELAND, Ohio—A recently conducted General Electric survey indicates that men dominate slightly more than 50 per cent of the purchases of electric refrigerators, it was announced here recently by Walter Daily, advertising and sales promotion manager of the General Electric refrigeration department, in a speech before more than 300 members of the Cleveland Advertising club.

Mr. Daily's appearance before this organization was the signal for celebration, inasmuch as it was his first talk to that group for a year.

Officials of the club removed customary restrictions and admitted, in addition to the 300 members, 200 others to the auditorium of the Allerton club.

"Results of this survey," Mr. Daily declared, "indicated that the men select the type and make of refrigerator in more than half of the purchases, which is in sharp variance with the popular belief heretofore that women do 80 per cent of all buying for the home."

(Concluded on Page 4, Column 2)

QUOTA AGAIN SET AT MILLION; WILL ADVERTISE MORE

Increased Appropriation Approved By Bureau

NEW YORK CITY—Plans were approved here late last week by the executive committee of the Electric Refrigeration Bureau to carry on during 1932 a more comprehensive and thorough series of cooperative selling activities than the Bureau has ever before attempted.

The program, which calls for "another million in 1932," embraces an increased advertising appropriation, more frequent issuances of promotional material, and a number of cooperative campaign ideas.

This announcement was made following a meeting of Bureau officials in New York City under the direction of J. E. Davidson of the Nebraska Power Co. of Omaha, national chairman of the bureau.

The plans submitted to the executive committee at its meeting here were formulated by the plan committee of the bureau. The plan committee held two meetings: one in Chicago, and one in Cleveland.

At the meeting of the executive committee, held in New York City, it was decided to increase the advertising expenditure of the bureau.

The budget calls for the expenditure of \$412,000—this money to be subscribed by the electric refrigerator manufacturers.

Of this total amount more than \$300,000 will be spent in national magazines, and more than \$2,500,000 more will be spent in local newspapers and for radio and outdoor advertising by the local bureaus and central stations.

National magazines selected for carrying the Electric Refrigeration Bureau message are: *Saturday Evening Post*, *Good Housekeeping*, *Time Magazine*, *McCall's Magazine*, and *Collier's*.

The dates of insertion will be governed by the sales seasons, with some 50 per cent or more of the advertising

(Concluded on Page 4, Column 2)

ELIN CO. MOVES OFFICE OF PHILADELPHIA BRANCH

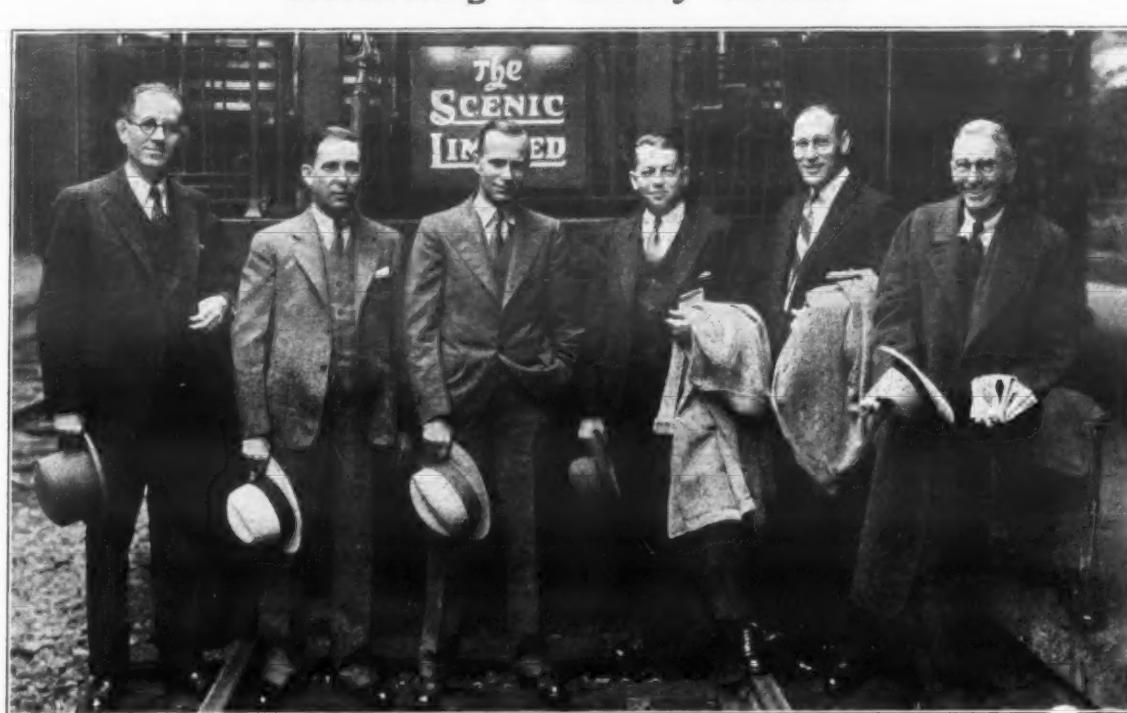
PHILADELPHIA—The Elin Co., distributor of Westinghouse electric refrigerators in the Philadelphia territory, moved its headquarters on Nov. 1, from 1733 Chestnut St., to the sixth floor of the Terminal Commerce Building, 401 N. Broad St.

As part of a new policy, the company's supervisors, branch managers and managers of dealer operations will meet every Saturday afternoon in the new quarters for business discussions and demonstrations.

These gatherings will be addressed by Nat Elin, president of the company; Robert Friebele, general manager; W. I. Webb, manager of the Philadelphia metropolitan section, and occasionally a factory representative from Mansfield, Ohio. The company plans to continue sales contests and these also will be discussed at the meetings.

APARTMENT MANAGERS TO STUDY REFRIGERATION

TACOMA, Wash.—Educational talks on electric refrigeration in apartment houses and hotels will be among the season's topics for the apartment owners, operators, and managers in this city, who have started a series of monthly meetings. The owners and executives of such buildings in Tacoma will have persons in varied lines address them during the winter meetings.



Homeward bound after the recent Trupar convention are (left to right) N. S. Reeves, Omaha; B. K. Williamson, factory representative, R. R. Lancaster, and H. W. Falls, all of Kansas City; Charles Kierulff, Los Angeles, and W. J. Seroy, factory representative, Oakland, Calif.

Refrigeration Dealers Cooperate with Local Bureaus in Fall Demonstrations

NEW YORK—Electric refrigerator distributors in New York City conducted the Homemakers Electric Refrigeration show from Oct. 26 to 30, in Electric Institute in Grand Central Palace.

The public was invited to inspect the Institute, as well as attend the Refrigeration Show, which included the display and demonstration of six different makes of refrigerators by manufacturers.

The six manufacturers who exhibited their newest models, offered prizes. On each of the five days of the show an electric refrigerator was given away as a door prize. Certificates worth \$10 and \$25 toward the purchase of an electric refrigerator were given also.

Among the speakers at the daily afternoon programs were Edith Barber, *New York Evening Sun*; Marian Hayes, *Brooklyn Daily Eagle*; Prudence Penny, *New York American*; Dr. Shirley W. Wynne, Commissioner of Health, City of New York; Ida Bailey Allen, National Radio Homemakers Club; Dr. Lillian Gilbreth, consulting engineer; Ada

Bessie Swann, Public Service Corporation of New Jersey; Mrs. Christine Frederick, Applecroft Home Experiment Station, and Marian Towne, Helena Rubenstein Organization.

Entertainment was supplied by Arturo Felippi, tenor, German Opera Co.; Louise Baer, Mildred Enright and Emily Day, soloists, and the Rex Cole Moun-

taineers.

At the final program Friday, Oct. 30, Clarence L. Law, president of the Electrical Association of New York, and general commercial manager, New York Edison Co., and Dr. G. W. Allison, National Electric Light Association, spoke.

The exhibitors were The New York Edison Co.; Brooklyn Edison Co.; New York and Queens Electric Light and Power Co.; United Electric Light and Power Co.; Yonkers Electric Light and Power Co.; Copeland Refrigeration Co. of New York; Frigidaire Sales Corp.; General Electric, Rex Cole, Inc.; Kelvinator Sales Corp.; Norge Corp., and Westinghouse, Allen-Ingraham, Inc., distributor.

Terre Haute Dealers In Theatre Display

TERRE HAUTE, Ind.—A large display of electric refrigerators was seen at the Terre Haute Tribune-Star-Indiana Theatre indoor fair which was held in the lobby of the Indiana theatre last week.

The display included the General Electric, Public Service Co. of Indiana; Tru-Cold, Montgomery Ward & Co.; Coldspot, Sears, Roebuck & Co.; and Starr Freeze, Silberman Furniture Co. of this city.

Betty Crocker on St. Cloud Program

ST. CLOUD, Minn.—An exhibition of electric refrigerators in the lobby of the local Paramount theatre brought more than 8,000 persons to the show and to inspect the display during Electric Refrigeration Week.

The local bureau, which is made up of nine electric refrigeration dealers, also presented a cooking demonstration in the theatre one morning during the week, with Betty Crocker, home econ-

omist for General Mills, in charge.

More than 700 women from St. Cloud and surrounding cities attended the demonstration at which an electric refrigerator was given away.

The theatre cooperated with the bureau in lending the lobby space for the display, advertising the exhibition in its trailer, and buying street car cards.

Dealers cooperating in the show were: Granite City Electric Co., Westinghouse; Northern States Power Co., Kelvinator; Otto Brothers, Servel; Powell Hardware Co., Frigidaire; Radio & Supply Co., Majestic; George Scherfenberg, General Electric; Sears, Roebuck & Co., Coldspot; Weber Jewelry & Music Co., Copeland, and H. W. Bensen, Mayflower.

Council Bluffs Utility Backs Show

COUNCIL BLUFFS, Iowa—Home economics demonstrations were held in connection with the Council Bluffs Food Show which was held from Oct. 5 to 10 in the auditorium of the Citizens' Power & Light Co.

Frigidaire and General Electric units were on display during the show while the members of the local refrigeration bureau were allowed to show their

models from the stage for one day. An all-electric cooking school was held each afternoon with Miss Gladys Looney, home economist of the Edison Electric Appliance Co., in charge, and Miss Florence McMillen of the utility as her assistant.

Utica Exhibition Draws 8 Distributors

UTICA, N. Y.—Eight electric refrigerator distributors, representing more than 61 dealers in the Utica area cooperated with the Utica Gas and Electric Co. in the utility salesroom from Oct. 3 to 10.

Mayor Charles S. Donnelley of Utica opened the show on Oct. 3. He was followed by Dr. Walter G. Hollingsworth, chief of the bureau of food hygiene, who gave a short address on food hygiene.

The home service department of the utility prepared and served frozen dishes during the show. Prizes were given away each day and at the close of the show, a refrigerator was given away as the grand prize.

A. P. Rafferty, General Electric, Leslie Moorehouse, Copeland, and Macy Robinson, Majestic, planned the exhibition which attracted more than 10,000 people.

Models on display included Copeland, Frigidaire, General Electric, Kelvinator, Majestic, Mohawk, Servel, and Westinghouse.

At Hartford Show

HARTFORD, Conn.—Refrigeration played a prominent part in the Radio and Electrical show held at Foot Guard Hall, here, Oct. 12-17. Six concerns exhibited five different makes of refrigerators during the week. The entries were as follows:

McCoy's, Copeland; Newton-Parsons Co., General Electric; Hub Radio Stores, Majestic; Sears, Roebuck & Co., Coldspot; Brown-Thomson, Inc., Norge; and Stern & Co., Majestic.

22 Demonstrations

JOPLIN, Mo.—Although a cooperative exhibit of electric refrigeration was not conducted by the Empire District Electric Co., the utility has held a series of 22 shows recently in which refrigeration was featured.

Twelve shows were presented during electric refrigeration week, Oct. 3-10, while 10 have been presented since that time.

The stage for the shows was a model kitchen and the demonstrator showed the value of electric refrigeration along with ranges and appliances.

Down in Georgia

SAVANNAH, Ga.—Six Savannah electric refrigerator dealers cooperated in an electric refrigeration show from Oct. 5 to 10. The show was presented by the Electric Refrigeration bureau.

Exhibitors were: Byck Electric Co., Frigidaire; Electric Specialty Corp., Kelvinator; Arthur J. Funk, Majestic; Savannah Electric and Power Co., General Electric; Sears, Roebuck & Co., Coldspot, and Southern Specialty Fixture Co., Westinghouse.

On the West Coast

LOS ANGELES—From Oct. 16 to Oct. 18 the first cooperative radio and refrigeration show was given at the Hotel Ambassador, Los Angeles. The show featured displays of Norge, Mayflower, Servel, Mohawk, Starr Freeze, Ice-O-Matic, Holbrook, Merrill & Stetson and Gilfillian Bros.

Balsam-Wool Sealed Slabs



NATIONALLY ACCEPTED

Completely satisfactory
Refrigerator Insulation

WOOD CONVERSION COMPANY

Industrial Sales Offices:
CHICAGO, 360 N. MICHIGAN AVE.
New York, 3107 Chanin Bldg.;
Detroit, 515 Stephenson Bldg.;
San Francisco, 149 California St.

"We're closing sales

RIGHT NOW!

that would otherwise be postponed till Spring"



THE Servel Hermetic—in its very first year—has won an enthusiastic response in every part of the United States. Thousands of families have chosen it in preference to any other.

Servel dealers know women want Simplified Refrigeration. They have learned that they can sell the Servel Hermetic against any competition—and in spite of general conditions.

Now November!

So we go into November with a vigorous determination to get a big share of the autumn business—to close sales NOW that will otherwise be postponed till Spring.

The families in YOUR neighborhood NEED Simplified Refrigeration NOW. Food spoils just as fast in heated kitchens

as it did during the heat of last summer.

Write immediately for our attractive Dealer Plan—and cash in on the sales opportunities straight ahead! We'll give you

a list of selling points that no other electric refrigerator can match!

SERVEL SALES, INC., Evansville, Indiana

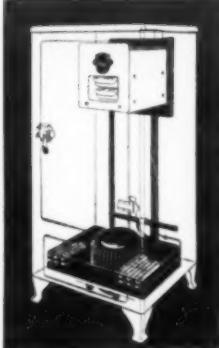
Manufacturers of a complete line of household and commercial refrigeration

SERVEL HERMETIC

Simplified Refrigeration

QUICK FACTS

Hermetically sealed unit . . .
No kitchen repairs . . . No intricate adjustments . . . No replacement of parts . . . Fewer moving parts . . . No moving parts exposed . . . Costs less to operate . . . Handy temperature control . . . More usable shelf space . . . beautiful, graceful cabinets . . . flat, usable top . . . No installation problem.



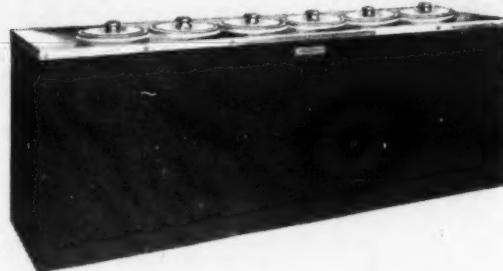
NOW



ICE CREAM CABINETS by GENERAL ELECTRIC

GUARANTEED FOR 3 YEARS AGAINST ANY SERVICE EXPENSE

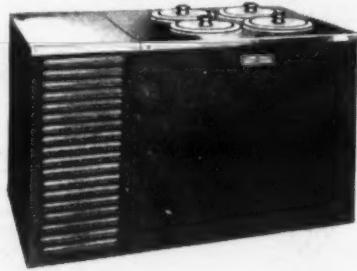
General Electric 6 Hole Single-row
Ice Cream Cabinet



General Electric 2 Hole Ice Cream Cabinet
with D-44 Unit



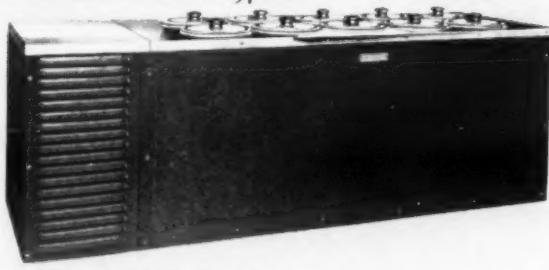
General Electric 4 Hole Double-row
Ice Cream Cabinet with D-44 Unit



General Electric 4 Hole Single-row
Ice Cream Cabinet



General Electric 10 Hole Double-row
Ice Cream Cabinet with D-54 Unit



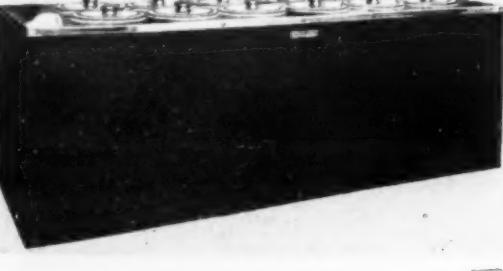
General Electric 6 Hole Double-row
Ice Cream Cabinet



General Electric 8 Hole Double-row
Ice Cream Cabinet



General Electric 12 Hole Double-row
Ice Cream Cabinet



**.... General Electric announces a line of ice cream cabinets
incorporating improvements entirely new to the industry**

THE famous General Electric sealed-in-steel refrigerating machine is now available for remote installations together with cabinets of radically improved construction and design. • The steel casing houses the compressor mechanism away from all damaging elements. Forced feed lubrication, positive forced air cooling, and simplicity in design assures long life. • Double exterior walls on the cabinets seal moisture out and efficiency in. Built to withstand the most severe operating conditions. Rust resisting and corrosion resisting. Lustrous black porcelain on ageless steel feature the exterior panels. • And a *three-year guarantee* on every model symbolizes General Electric's faith in the product. A guarantee made possible by new developments in moisture-proof cabinet construction and by performance of the refrigerating unit—the same quiet, dependable performance which won nation-wide public preference for the famous General Electric Refrigerator. General Electric Company, Electric Refrigeration Department, Section DF111, Hanna Building, Cleveland, Ohio.

*Give to your local welfare and relief organizations, to your Community Chest,
or to your Emergency Unemployment Committee for unemployment relief.*

GENERAL ELECTRIC
ICE CREAM CABINETS

COMMERCIAL, DOMESTIC AND APARTMENT HOUSE REFRIGERATORS, ELECTRIC WATER COOLERS

COPELAND WATER COOLER PLACED IN FANEUIL HALL

BOSTON, Mass.—Faneuil Hall, the famous "Cradle of Liberty," Boston's old market house, has been equipped with a Copeland unit to cool its drinking water.

Refrigerator Sales & Appliance Corp., Copeland dealer in metropolitan Boston, installed a "Q" condensing unit in conjunction with a Spear generator connected to two fountains, which provides drinking water to thousands of visitors who come annually to this historic spot.

Within its walls, some of the most stirring scenes connected with the American Revolution were enacted. It was in this building that a series of tea meetings were held. George Washington, as the first president in 1789, was banqueted in its hall.

Mr. M. Atlas, sales manager, also reports the installation of a Copeland model D-15 in the same building, but this cabinet is to care for the food kept for the Ancient & Honorable Artillery Co. of Massachusetts. This organization received the first charter issued to a military company in North America.

The organization moved to Faneuil Hall in 1746, and there it has remained down to the present time; the oldest army in continuous use by a military organization in the United States.

LIPMAN SALES FORCE ENTERS RACE HORSE CONTEST

(Concluded from Page 1, Column 2)

The winner of the last furlong will receive \$40, second place, \$35, and third place, \$30.

In the salesmen's or jockey's race, prizes for each of the first four laps are \$15, \$10, and \$5, while the next three bring \$25, \$20, and \$15. The last lap awards are \$40, \$35, and \$30.

Bigger Program Planned for 1932 by NELA Refrigeration Bureau

(Concluded from Page 1, Column 5)

to be carried by the first of March and the end of June.

Following are other high spots of the 1932 program:

The national sales quota will remain at 5 per cent of domestic customers or approximately 1,000,000 refrigerators. The slogan of the campaign will be "Another million in 1932."

It is suggested that local budgets amount to \$2 per refrigerator of expected sales as based on quota and that this amount be in addition to any regular commercial expenditure for the furtherance of electric refrigerator sales or promotion.

The publicity and advertising program of the bureau will emphasize "All-year-round refrigeration" and "Invest in an electric refrigerator." Other messages which will be stressed are the ease of purchase, health, economy in purchasing, etc.

"Our cooperative advertising and selling experience during the current year has proven to us that intensive advertising and selling can produce results in spite of the present economic distress," said Mr. Davidson.

"At the beginning of our program this year our goal was 1,000,000 refrigerators—an ambitious program for these selling times. Reports from local cooperative bureaus already tabulated show that our cooperative advertising and selling has made the people of America 'food preservation conscious.' By the end of the Christmas selling activity we are confident that we will exceed our goal on 1,000,000 refrigerators sold during 1931."

A complete Plan Book was issued in February, 1931, for the whole year. But it is found that these books, after a month or two, become misplaced or lost and redistribution is necessary.

Also, it is found that sales promotion and advertising materials for use late in the year and illustrated and discussed so far in advance of actual use lose their interest long before they should. This condition is directly reflected in our orders for sales promotion materials. Therefore, in 1932 there will be two Plan Books issued.

The first book, outlining plans and illustrating materials will cover the period from the beginning of the year until the end of July and will be ready for distribution about Jan. 1.

The second Plan Book will cover the period from Sept. 1 to the end of the year and will be ready for distribution Aug. 1.

In addition to those books there will be made available four books of colored cover and one color text covering each special activity, as follows:

1. "The Ten Million Call Month"—A campaign for the month of March contemplating house-to-house calls and with special emphasis on such calls by the smaller retail outlets.

2. "The 20 Per Cent Sales Month"—A campaign for the month of May to sell electric refrigerators in 30 days which will combine a cooperative refrigeration exhibit plan with a plan to sell 20 per cent of the year's quota of new prospects.

3. "Electric Refrigeration Week and Celebration of 50th Anniversary of the Electrical Industry"—An electrical show with refrigeration as the dominant factor—Saturday, Sept. 29, to Saturday, Oct. 6. Follow up of new prospects during balance of October.

4. "Buy an Electric Refrigerator for Christmas Campaign"—Nov. 1 to Dec. 24, a campaign in which all sales and non-sales employees may participate with special emphasis on action by small sales outlets.

For each of these activities a plan book will be issued, similar to the 1931 Electric Refrigeration Week booklet, in which all details of operation are covered and in which samples or skeletons of letters, invitation tickets, newspaper ads, window displays, etc., are shown so that the ideas may be carried out with the minimum of creative effort on the part of local bureaus, the announcement says.

Special newspaper advertising and special sales promotion materials are also being prepared to be sent to all local bureaus.

One of the features of the 1932 program will be a new style "Cooperator," the house organ of the bureau, to be published in tabloid newspaper style.

Another feature will be a prize contest among regional and state directors. This activity will begin in 1931 and culminate at the National Electric Light Association convention in June.

Plans are also being made for a nation-wide essay contest to be conducted in the fall.

There will be established immediately at bureau headquarters, a complete publicity department to prepare news stories and magazine articles for use in national magazines, local newspapers, company house organs and for other purposes.

George Brown has been employed as permanent manager of the bureau. Mr. Brown has been associated with many large manufacturers as a selling expert and sales executive, according to N. E. L. A. officials.

Prior to the firing of the opening gun in the 1932 campaign, meetings of regional and state directors and local bureau chairmen will be held in the various regions of the country. Representatives of the national bureau will direct these meetings.

A corps of field men will travel throughout the nation representing the national bureau in aiding the local bureaus in developing their cooperative programs.

In connection with the meeting of the executive committee just ended in New York, it was declared that more than 550 key cities held Electric Refrigeration Week exhibits and shows. More than 500 local bureaus have already been formed and 8,500 cities are taking part in the national activity, Bureau officials stated.

Reports were made to the executive committee that promotional materials are being ordered in large quantities. Particular stress is being put on gaining the active cooperation of small retail outlets.

The following men were present at the meeting: J. E. Davidson, national chairman of Nebraska Power Co., Omaha; T. F. Kennedy, Henry L. Doherty & Co., New York, N. Y.; L. R. Parker, The Commonwealth & Southern Co., New York, N. Y.; W. R. Putnam, Electric Bond & Share Co., New York, N. Y.; T. O. Kennedy, Ohio Public Service Co., Cleveland, Ohio; A. E. Ward, Associated Gas & Electric System, New York, N. Y.; M. E. Jacobs, Nebraska Power Co., Omaha.

W. H. Burritt, Kelvinator Corp., Detroit; J. A. Harlan, Frigidaire Corp., Dayton; P. B. Zimmerman, General Electric Co., Cleveland; C. D. Taylor, Westinghouse Electric & Mfg. Co., Mansfield, Ohio; Louis Ruthenberg, Copeland Products, Inc., Mt. Clemens, Mich.; C. E. Greenwood, National Electric Light Association, New York, N. Y.

The following guests were present: William Reynolds, Servel, Inc., New York, N. Y.; George Jones, Frigidaire Corp., Dayton; Duane Jones, Lord & Thomas & Logan, New York, N. Y.; W. E. Underwood, Lord & Thomas & Logan, New York, N. Y.; G. W. Allison, Electric Refrigeration Bureau, New York, N. Y.; G. N. Brown, Electric Refrigeration Bureau, New York, N. Y.

MEN BIG FACTOR IN SALES, DAILY FINDS

(Concluded from Page 1, Column 4) that it is necessary to get the man and wife together before presenting our sales story, and it is to aid our salesmen in these efforts that the General Electric refrigeration department has spent many millions of dollars in advertising in trade papers, national magazines, newspapers, and, more recently, specialized radio programs.

"An example of the extensive use of direct mail by our distributors and dealers as well as utilities, is the increase in the number of pieces sent out from January of this year until June. During January 52,513 pieces were mailed out, in June this number leaped to well over 1,300,000.

"In the final analysis, however, it is the greatest dollar value in advertising we are all seeking and for this reason our research and the researches being conducted by others as well, will go on as we strive to determine definitely wherein lies the best advertising value."

DUNNING HOLDS LEAD IN G. E. POLITICAL CAMPAIGN

(Concluded from Page 1, Column 1)

pleased to call "Fred Harvey Week" in Newark. During this period the distributor organized a "Flying Squad" led by Fred Harvey with the distributor, himself, as Harvey's first lieutenant.

District representative Harvey has supported "The 25 Plan" to such an extent that he, himself, while spending a day in Boston recently challenged every salesman employed by Gentsch & Thompson, Inc., distributor there, to a canvass contest.

The "sales committee" selected one of the "toughest" streets in Boston and told Harvey to canvass there. Then the salesmen went their way to canvass other prospects. Harvey made a sale at 11:00 o'clock that night.

In all sections of the country weekly meetings are being held in distributor's salesrooms at which time votes are cast.

Although there are no particular prizes offered, District Representatives Fred Harvey and T. B. Allen, the latter a neophyte who has been a representative but a few weeks, are waging one of the hardest sales battles ever witnessed by the General Electric refrigeration department.

The first week that Allen went into his territory, he lead Fred Harvey by a few hundred votes, the second week Fred Harvey lead Allen and it has been up and down, until this week when Allen stepped into the lead with more than 2,700 votes to his advantage.

WEST COAST DISTRIBUTOR VISITS GIBSON PLANT

GREENVILLE, Mich.—Ben Platt of Los Angeles, president of the Platt Music Co., southern California distributor of the Gibson electric refrigerator, has been making an inspection of the Gibson plants.

CONSULTANT TO HEAD RADIO PRODUCERS ASSOCIATION

NEW YORK—Ivan B. Nordham, consultant on sales and advertising and vice president of Marketing Associates, Inc., has accepted the presidency of Radio Producers Associates, Inc.

MAJESTIC DEALER MOVES

YOUNGSTOWN, Ohio—Wright Refrigeration Service has moved its showroom to 26 Wick Ave.

THE IMITATION FOOD PRODUCTS CO.

107 Lawrence St.
Brooklyn, N. Y.

Entering the Eighth Year of successful business

Prices in our catalog of January, 1931, are reduced 20 per cent.



C.I.T. CORPORATION

ONE PARK AVENUE, NEW YORK

A Unit of

COMMERCIAL INVESTMENT TRUST CORPORATION
CAPITAL AND SURPLUS OVER \$90,000,000

Subsidiary and Affiliated Operating Companies with Head Offices in New York
Chicago ~ San Francisco ~ Toronto ~ London ~ Berlin ~ Brussels ~ Paris
Copenhagen ~ Havana ~ San Juan, P. R. ~ Mexico City ~ Buenos Aires
Sao Paulo ~ Sydney, Australia ~ Offices in more than 160 cities.

"AUTOMATIC"

means something

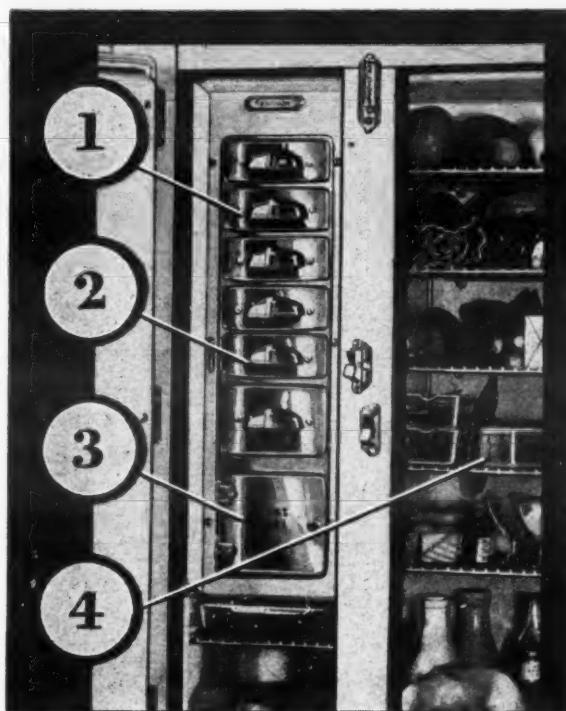
IN A KELVINATOR!

TO THE CONSUMER

It means 4 constant temperatures, each automatically controlled without ANY regulating or dial setting

YOU would not say an electric light was automatic just because it lighted when you pressed a button. It is, likewise, just as incorrect to say an electric refrigerator is *automatic* when you set a dial or other device *by hand*.

Look at the illustration on the right. Notice there are no dials or levers of any kind to be manipulated by the housewife. And yet, there are four *different* temperatures, constant temperatures that are controlled *automatically*—without supervision of any kind on the part of the owner.



1 The fast freezing trays for making ice cubes and frozen desserts are automatically controlled. This is Temperature No. 1.

2 Temperature No. 2 is in the super-fast Iso-Thermic Tube tray. It is automatically controlled. Here ice cubes will freeze in the average time of 80 minutes—the world's fastest freezing speed.

3 In the Frost Chest, a below-freezing temperature (No. 3) is automatically maintained. Here, fish, meats, and frozen foods can be kept indefinitely.

4 The Temperature (No. 4) in the food compartment is constantly below 50 degrees, insuring the safe preservation of foods.

TO THE DEALER

IT MEANS PROFITS!

Here is *truly automatic operation*. And Kelvinator is the only electric refrigerator that has it.

It isn't hard to realize the tremendous importance of this exclusive sale feature. Nothing in electric refrigeration compares with it. And it belongs to Kelvinator dealers *entirely*.

We will be glad to discuss this, and other profit-making phases of the Kelvinator Sales Agreement with you. The sooner the better—because 1932 will soon be here. And 1932 is going to be another great year for Kelvinator.

KELVINATOR CORPORATION, 14245 PLYMOUTH ROAD, DETROIT, MICHIGAN

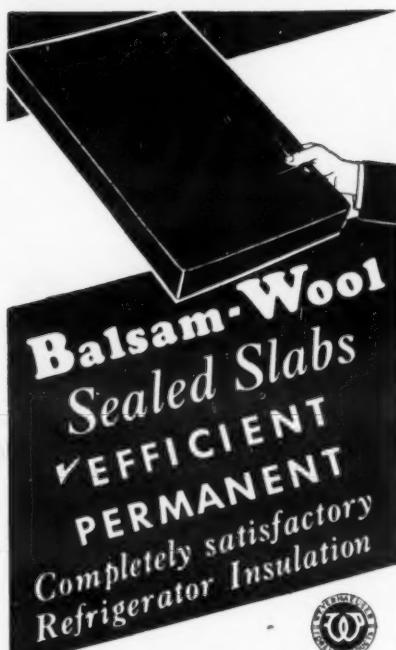
Kelvinator of Canada, Ltd., London, Ontario

Kelvinator Limited, London, England

Kelvinator

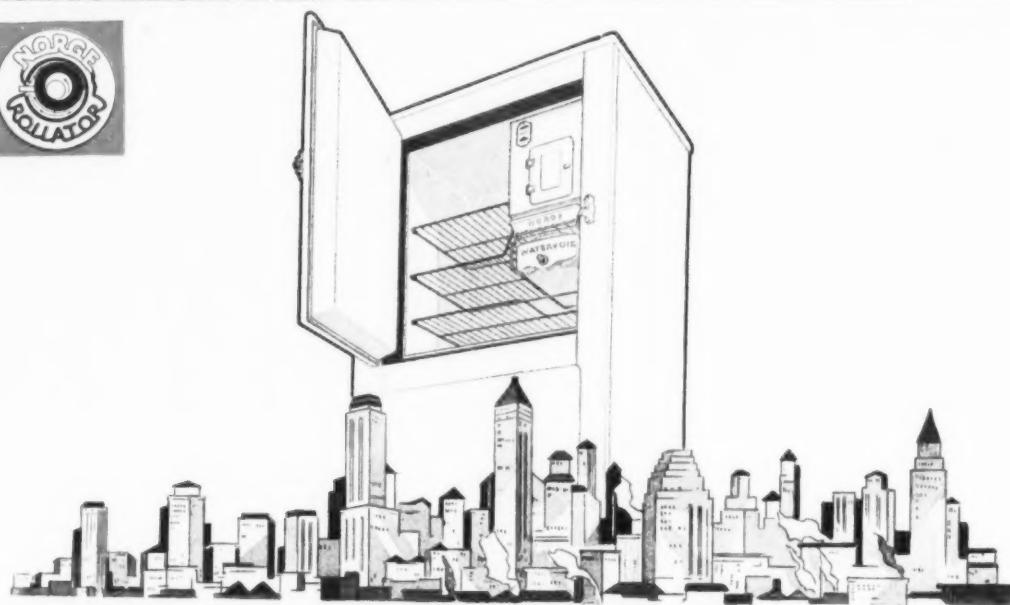
HOME ECONOMIST USES G. E. IN DEMONSTRATIONS

MIDDLETOWN, Conn.—Mrs. Lilla P. Cross, conducting a cooking school for women under the auspices of the Middletown Press, daily newspaper, employed General Electric refrigerators in her demonstrations. The refrigerators were furnished by the Middletown branch of Modern Home Utilities, Inc.



WOOD CONVERSION COMPANY

Industrial Sales Offices:
CHICAGO, 360 N. MICHIGAN AVE.
New York, 3107 Chanin Bldg.
Detroit, 515 Stephenson Bldg.
San Francisco, 149 California St.



What NORGÉ Success in the Toughest Market means in your locality

WISE and wary New York bought more than one million dollars worth of Norge Electric Refrigerators during the first six months that Norge was on sale there.

Twenty-eight of the finest apartment houses built in the metropolitan area during the first half of 1931 are Norge equipped throughout.

Twenty thousand visitors at a showing of Long Island model homes, where various leading makes of refrigerators were installed, unanimously voted Norge their first choice. Now, that builder installs Norge exclusively.

The features that won big success for Norge Rollator Refrigeration in New York (the toughest market in America for utilitarian products) are the features that make Norge the easiest to sell in your locality.



THE ROLLATOR
This exclusive Norge refrigerating mechanism has only 3 moving parts...it's extra powerful...almost everlasting.

There is extra cooling power in the Rollator. The Norge user gets the benefit of this extra cooling power in better day to day results and more years of dependable refrigeration.

More sales, easier sales, better profits and minimum service requirements make Norge an attractive product for progressive dealers.

Norge is package merchandise...a short line...service free. For full details of the Norge dealer plan, write, wire or 'phone.

NORGÉ CORPORATION
658 E. WOODBRIDGE ST. DETROIT, MICHIGAN

Norge Corporation is a division of Borg-Warner Corporation, one of the world's largest makers of automotive parts, including free wheeling.

NORGÉ
ROLLATOR REFRIGERATION

SEEGER OPENS MODEL STORE IN NEW YORK

NEW YORK—The new showroom and offices of the Seeger Refrigerator Sales Corp., New York branch, are approximately three times as large as the present showroom on Madison Ave.

The showroom, 65 ft. by 90 ft. deep, is "accessible" through two generous doors on the Fourth Ave. front, and a receiving door on 19th St. Each of the two entrance doors is on an axis with an aisle leading directly to the low rail which divides the office space from the showroom.

The floor covering is of rubber tile laid with an interesting combination of colors. The predominating shades are two cool greenish blues accentuated by strips of pure white and jet black.

The walls to a height of 8 ft. pick up the darker blue on the floor, which will form the background for the display of the white porcelain cabinets—at the 8-ft. height the wall color shades off to a cool sea green.

The lighting fixtures are modern in character, specially designed and constructed of aluminum, distributing the light in a soft glow by reflection. The columns are treated in the same color scheme as the side walls. Each column is equipped with electric outlets for connection to the automatic interior lighting of the sample cabinets. The show windows totalling 75 ft. of display space, give ample opportunity to show the line on both Fourth Ave. and 19th St.

The windows are equipped with the most modern type of lighting reflectors. The floors are ramped up to the show windows, the floor covering being carried up the sloping surfaces.

The offices are laid out with space for the private office of Manager C. A. Muessel, and a conference room equipped with Early American knotty pine furniture; file room; rest room for



Modern in every detail is the new New York showroom of the Seeger Refrigerator Co. which was opened recently. The photograph shows the entire display floor.

ladies; desks for salesmen, stenographers, etc.

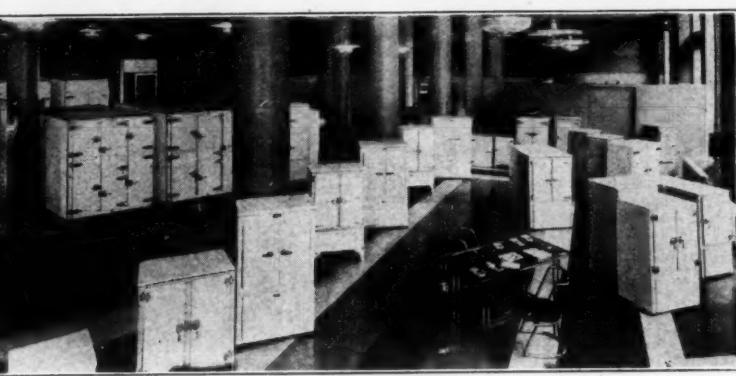
Ample receiving space on the 19th St. side is separated from the showroom by an 8-ft. partition which is equipped with a wide door to admit the larger units to the showroom space. A large draughting room with north light is also provided.

ELECTROLUX DISTRIBUTOR USES SPECIAL TRUCKS

PHILADELPHIA—To insure delivery of Electrolux, gas refrigerators in perfect condition at the customer's home, the Philadelphia Gas Works Co. recently put into service a specially designed truck, which is used exclusively for this purpose.

Features of the refrigerator truck are its very low floor with heavy padding to prevent scratching or abrasion of the finish and large doors at the rear to facilitate handling.

Seeger Showroom in New York



Modern in every detail is the new New York showroom of the Seeger Refrigerator Co. which was opened recently. The photograph shows the entire display floor.

R. COOPER, JR., MEN WILL DEPEND ON FILM IN WINTER SELLING OF GENERAL ELECTRIC UNITS

By Phil B. Redeker

CHICAGO—Mr. and Mrs. Chicago Homebodies may have stored up a lot of sales resistance for the winter months, but the sales directors of R. Cooper, Jr., Inc., General Electric distributor, are pretty sure that it's going to melt away when one of their salesmen pulls a small motion picture projector from his pocket and flashes the film, "The Lady Who Bought One in the Winter" upon the wall of their home.

Dick Cooper's outfit has always been noted for its startling and elaborate sales measures.

This season, according to H. W. Gifford, sales manager, the winter campaign's ace-in-the-hole will be the home movies devised by the General Electric refrigeration department at Cleveland. Says Gifford:

"The pocket film (which is no larger than a spool of thread), will be used as the climax to the sales talk, or to break through a wall of resistance. It will be a far more graphic presentation of our selling points than all the glibness or literature that the salesman might use," he states.

25 Calls Each Day

The R. Cooper, Jr., Inc., organization is constantly on the watch for ways in which to help its salesmen, expecting in return, hard work and results.

"We expect the salesmen to make 20 calls during the day, and five at night," Gifford explains. "The refrigeration industry is one which knows no hours, as could be attested to by Mrs. Gifford."

Contrary to the policy followed by many other distributors, the G. E. salesmen are, for the most part, men without previous experience in the refrigeration line, although it is preferred that they have had selling experience in some line, such as real estate.

"When you get a man who has sold another machine, you have to unsell him on that machine," Gifford explains. "When you get a man with no previous refrigeration experience, he will be anxious to learn and enthusiastic about the idea of refrigeration."

Trained in 'Institute'

The salesmen are trained in what is known as the "Institute," which also serves as a review class for older salesmen, to whom the old selling picture is renewed or a new one portrayed.

If the new man proves successful in a 30-day trial, he gets an exclusive territory, and receives commissions for all sales made within that territory.

The salesmen operate out of eight showrooms, under the supervision of the showroom manager and district manager. They are called "representatives," but are paid upon the commission basis.

The Commonwealth Edison Co. is the only R. Cooper, Jr., dealer in the Chicago area (the utility also handles Frigidaire and is a Kelvinator distributor), and to prevent any serious results from competition with Cooper salesmen, the latter are given part of the commission made on every sale by the utility company.

Apartment House Bonuses

As all apartment house sales are closed through the central offices because of the convenience of its location with respect to apartment house buyers and other prospects for multiple installations, this field is shut to the salesmen, but he is compensated for every sale made for an apartment house in his area.

"We believe that our bonus system is the one plan which keeps our salesmen on their toes throughout the year," Gifford states. "We offer a 10 per cent bonus for making 100 per cent of quota, the bonus to be paid yearly or quarterly. However, those who fail to make 100 per cent get a bonus relative to what their sales records actually show—thus, a salesman making 70 per cent of quota gets a seven per cent bonus."

This system of bonuses, Gifford believes, keeps the salesman going full speed during all seasons, for it is only year-around effort that will enable him to bag a high percentage of his quota.

The direct mail system used by Cooper's forces was evolved through study

and careful planning, and now is the keynote of most of their sales drives.

The literature is received from Cleveland, but is mailed from the Chicago office upon a definite schedule, separate mailings going to each of the predetermined salesmen's zones.

Mailings are made on the first, tenth, and twentieth of the month, to enable the salesman to spread out his calls and to arrive at receiver's home not too long after he has taken the literature out of his mailbox.

Even if the prospect has tossed the pamphlet into the waste-paper basket without looking at it, he is soon reminded of it by the salesman, who carries along a copy of every piece of literature which is mailed out.

"The recognition of this material by the prospect when the salesman displays it has been the opening wedge for thousands of sales talks," ventures Gifford.

Horse-race Contest

One of the biggest factors in keeping alive the spirit of the salesmen over the entire year is the R. Cooper, Jr., Inc., horse-race contest, which lasts for the entire year.

The prizes in the contest consist of a division of the pari-mutuel earnings between the first two teams—this prize money contributed by the bets which the salesmen themselves place—and an educational-pleasure trip to some main point in G. E.'s Refrigeraria—which is contributed by the distributorship.

"The sporting element in this sort of contest, coupled with the fact that the salesmen have some of their own money invested, keeps the interest high at all times," Gifford avers. "When the contest nears its close, the men crowd around the standings-board like they were waiting for the results of the Kentucky Derby."

Direct Sales Value

The Cooper board of strategy has at one time or another tried out almost every type of advertising and sales promotional media and has found them all to be relatively effective.

Very little copy goes into newspaper advertising that can't be termed as having direct sales value. The baseball broadcasts carried out throughout the entire season, with Tris Speaker at the microphone, brought the matter of General Electric refrigeration to the personal attention of hundreds of thousands of the money-making element in the domestic prospect group.

Users Club Valuable

The new R. Cooper, Jr., Inc., home service club for users, with its carded membership and periodical meetings, is bringing new prospects to light with every meeting, for each user is almost certain to "bring a friend" to the demonstrations and bridge parties offered at the district showrooms. A regular home service staff is maintained to abet the work in this division.

The magnificent main showroom in the new LaSalle-Wacker building, said to have cost in the neighborhood of \$70,000, has a high value as a sales medium, Gifford believes. Its modernistic design and settings attract the attention of passersby, and its location enables a salesman to get a working prospect to look at the complete line during his lunch hour, where it might be difficult to drag him to a showroom after he has settled down for a comfortable evening at home.

FOUR FLORIDA SALESMEN GAIN BTU MEMBERSHIP

JACKSONVILLE, Fla.—Four Florida Frigidaire salesmen were honored at a banquet Friday, Oct. 9, for selling their year's quota in the first three quarters.

BTU quota club certificates were presented to H. C. Hightower, and L. G. McWilliams of Jacksonville Refrigerating Co., and George Barr and C. D. Millikan of Leesburg.

The banquet was for salesmen who sold their quotas during the third quarter and sales prizes were awarded.



The Dry-Zero "graining" machine which automatically parallels the fibres—a patented and exclusive process.

Science Improves on Nature

Nature put a remarkable fibre inside the pod of a strange tropical tree. Its primary purpose is to aid in propagating and perpetuating the Ceiba tree. So adapted is it for this work that the light, waterproof Ceiba fibre floats for great distances through the air even in a torrential tropical downpour.

Each tiny fibre is a glass-like tube sealed at both ends and has smooth, shiny surfaces that reflect heat like spinning marbles bouncing from a highly polished slab.

In their natural form these unusual fibres have a high degree of insulation efficiency. Through the genius of Harvey B. Lindsay, it was found that a much higher efficiency was achieved by placing the fibres parallel in such a manner that the path of heat flow crosses the grain. Science having

gone Nature one better, practical methods were required for making this discovery available to the refrigeration industry. Science further aided in developing machinery for "graining" the Ceiba fibre continuously and assuring a permanent uniformity.

Thus Dry-Zero became the most efficient commercial insulation known. Tests by national authorities including the U. S. Bureau of Standards show Dry-Zero to be 20 to 30 per cent more effective than commercial cork and fibre insulating boards. It will not crack, settle or disintegrate. It is highly resistant to moisture and can never give off or absorb odors.

Dry-Zero Pliable Slab is now used in more refrigerators than any other single insulating material.



Harvey B. Lindsay, insulation genius, president of Dry-Zero Corporation.



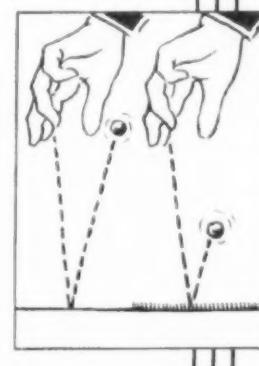
The Ceiba Pentandra, from the seed pods of which fibre is taken to make Dry-Zero.

DRY-ZERO CORPORATION

Merchandise Mart - Chicago, Illinois
Canadian Office - 465 Parliament Street, Toronto

DRY-ZERO
THE MOST EFFICIENT COMMERCIAL INSULANT KNOWN

Marbles bounce more forcefully from a smooth, polished surface than from one that is rough, and illustrate how heat is reflected from the shiny, smooth surfaces of the Dry-Zero fibre.



MERCHANTISING SECTION ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Refrigeration Industry

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Big Plans for 1932

JUDGING by the scope of its recently announced plans for 1932, the Electric Refrigeration Bureau is apparently expecting to do a thorough job of promoting sales of electric refrigerators in 1932.

Again the goal has been set at one million refrigerators. Bureau officials predict that the industry will have topped that figure with its 1931 sales total before the end of the Christmas selling season. To insure the attainment of this identical quota in 1932, these officials are planning considerably expanded cooperative activities, an increased advertising schedule, and many more stunts.

The advertising appropriation of the bureau has been set at \$412,000, which is to be subscribed by electric refrigerator manufacturers who are members of the bureau. More than \$300,000 of this total will be spent for advertising in five national magazines; and it is predicted that at least a quarter of a million dollars more will be expended for local newspaper, radio, and outdoor advertising.

More promotional material and "plan books" will be issued; it is hoped that ten million house-to-house calls will be made during the month of March; through May will run a campaign to sell 20 per cent of the year's quota; another "electric refrigeration week" will be held from Sept. 20 to Oct. 6 in conjunction with the celebration of the fiftieth anniversary of the electrical industry; a lengthy Christmas sales campaign will be conducted again.

Ambitious Plans

It is evident that the men who are directing the course of the N. E. L. A. Electric Refrigeration Bureau are intending to "do it up brown" next year. Their plans are ambitious; and what's more, there is every evidence that they mean to carry them out to the last item.

This, of course, is good news to the men out on the firing line in the electric refrigeration industry. From expressions of opinion uttered by their leaders, it can be gathered that the industry's sales forces have been pleased by the cooperative efforts expended in their behalf. They will be more than glad to hear that the Bureau expects to do a better and more thorough job in 1932.

Dealer Cooperation

It is not likely that those leaders who are responsible for the Bureau's plans will overlook the all-important matter of securing dealer cooperation in the hundreds of cities in which, it is hoped, local bureaus will be established and cooperative activities will be sponsored.

They are cognizant of the fact that failure to secure such cooperation in many cities and towns thus far has been the weakest link in the whole scheme.

On file in the editorial department of ELECTRIC REFRIGERATION NEWS are the addresses of more than 300 local bureaus. National headquarters men claim that twice that many bureaus have been established, but so far national bureau officials have been unable to augment the NEWS list of local organizations.

Within the month just past every one of these

bureaus has been contacted by mail or personal visit by the editorial department of the NEWS. In goodly numbers these bureaus have responded with stories of their cooperative activities—a response which has been reflected in the news columns of the industry's paper.

A number of other public utility executives, listed as heads of local bureaus, have replied that they have been unable to get the dealers of their respective cities to join hands in any sort of cooperative enterprise. Many others have not replied to letters at all.

Task Just Begun

From these facts it is apparent that the task of organizing and maintaining high standards of activity in local bureaus has just begun. When not many more than 300 cities are on record as supporting active bureaus, the seriousness of the situation and the magnitude of the job ahead becomes manifest.

The cooperative efforts fostered by the Electric Refrigeration Bureau of the National Electric Light Association undoubtedly have helped boost the sales of electric refrigerators this year. They will do so again next year. The extent to which the industry can profit by the highly admirable and aspiring 1932 plans of the national bureau will be limited only by the amount of cooperation given them by dealers throughout the nation.

Magnificent Potentialities

It would be an imaginative feat of the first order to conjure up a picture of the results this national cooperative campaign might secure should all the country's active retail outlets for electric refrigerators be united under the banner of the Electric Refrigeration Bureau.

The plans are excellent. The management is first class. All that is needed now is a large army of workers to execute the ideas of the management and carry out the plans.

GLEANINGS FROM RECENT PERIODICALS

NO PLAN yet submitted for the improvement of economic problems has been so widely discussed as that offered by Mr. Swope last month at the annual meeting of the National Electrical Manufacturers Association.

While certain features of the Swope plan have met with criticism, the majority of commentators from conservative groups, and, surprisingly enough, those from what are generally considered radical quarters, have accorded it praise as the first seemingly practicable program for stabilization of industry.

Most of the criticism from conservative sources has been directed against the features that might possibly affect the exercise of individual action of the participants; the surrender to greater federal control and supervision; and possible ultimate price fixing. Practically all admit there will be serious difficulties in securing a majority of industry, public, and legislative approval of the principles embodied in the plan, and agree that there are serious obstacles to putting it into effect.

But, no doubt, these obstacles could be removed, if—to quote Owen D. Young, and at the same time take the liberty of changing the original application of his words—"the people who are calling for economic planning really mean what they say."

Walter Lippman has said of the plan: "If we were a rational people in our public affairs we should not try to judge the practicability, the value, and the disadvantages of such a proposal by arguing abstractly and consulting our feelings. We should accept the tender of the electrical manufacturers to make the experiment, and we should find a way under our laws of guaranteeing them immunity from prosecution while they adhere loyally to the principles of their plan. I do not know whether our political system is flexible enough to permit one industry to offer itself up for a public demonstration; but it would be a highly enlightened proceeding if, by some kind of treaty between the electrical industry and the government, the experiment could be made. It would teach us more than we can ever hope to learn in any other way."

The Board of Governors of N. E. M. A. have given serious consideration to Mr. Swope's plan and arrived at the following conclusions:

"1. That we heartily commend the courage and vision shown by Gerard Swope in presenting his program for the Stabilization of Industry and congratulate him on the development of a completely formulated plan.

"2. That we firmly believe that a plan of Stabilization of Industry which shall be of aid to all elements involved, the worker, the stockholder, and the public, is a commendable national objective.

"3. That we therefore recommend to the Policies Division of N. E. M. A. that the Swope Plan be referred to a special committee for careful study and for the development, in cooperation with other Trade Associations, of a constructive program contemplating the Stabilization of Industry with adequate protection for all elements involved."

The progress of the Swope Plan will be keenly watched by the electric light and power industry, and it is certain that cooperation will be forthcoming in the furthering of this, or any other constructive program, contemplating the stabilization of industry with adequate protection for all elements involved.—*N. E. L. A. Bulletin*, October.

An Editor on Wheels

Stories of Interesting PLACES in the Refrigeration Industry

By GEORGE F. TAUBENECK

Off Duty in Atlantic City, N. J.

Atlantic City is a great place to sleep. One realizes it more on each succeeding siesta in this wave-lapped haven for week-enders.

One might infer from the above that Atlantic City isn't good for much else. And the implication isn't far from the truth.

People go to Atlantic City with high hopes for hilarity. They expect to be entertained mightily. They anticipate a hectic succession of uproarious parties. They set their hearts on a dizzy whirl of gregarious activities culminating in a tired but happy and satisfied feeling.

They get that tired feeling all right. It comes the first day. And that night they are not quite so ready for a li'l whoopee as they thought they would be.

But they start out bravely, nonetheless. Plentiful alky and congenial acquaintances to the contrary notwithstanding, it isn't long before the first yawn appears, and then another, and another.

Ere long the drooping party fizzles out and dissolves, and all are snoring profoundly.

The parties become fewer and shorter; and by the end of the week the chief thing Mr. Funseeker looks forward to is another good snooze. And the snoozing, ladies and gentlemen, is tip-top.

Contributing causes to this proclivity for sleep on the part of Atlantic City visitors are many.

First of all there's the Boardwalk. Everybody walks when in Atlantic City. It's the thing to do.

Fashion parade, tangy salt air, wide expanse of ocean, and a string of amusements of the type you enjoyed in knee-pants days—these are the attractions. And again, it's what is being done. So, unless you have business to do, you walk.

We know little about the comparative resiliency of wood, concrete, linoleum, and other pedal surfaces, but we do have a hunch that the planks of which the Atlantic City Boardwalk is composed are as unyielding as a mother-in-law.

And it is a fact that chiropodists and masseurs make a good living in the Sleepy City.

Still another reason for Atlantic City's propensities for tiring is the nature of the amusements it offers. As previously indicated, they are chiefly of the street fair and circus side show variety.

A wax figure museum, shooting galleries, take-a-chance stands with kewpie doll prizes (one such place features a trained mouse which, when released, runs into a hole numbered to correspond with a square on the playing table), incubator babies, fortune tellers, crazy-motion "rides," quick-photo booths, from-the-life sketchers and silhouetteters, "historical" exhibits, hot dog and salt water taffy stands, health preachers and astrologers, movies, and supper clubs.

The gigantic auditorium, which has a seating capacity of 41,000, presents indoor football, polo, and other sports in fall and winter.

Typical of these side shows is the wax figure museum. A sign invites you to come in and see famous men at no charge. The line-up of dummies begins innocuously enough, with a row of presidents of the United States, in order, from Washington to Hoover.

Then comes a series of outlaws, including the James boys and ending with Ruth Snyder seated in what purports to be an electric chair. Exploits of these bandits and cheap criminals are extolled in hand-painted placards which are probably the most ungrammatical barbarities ever perpetrated.

After Judd Gray and Ruth Snyder, one bumps into two girls, both very much alive, who stand guard over the exit. A table with decoy silver pieces is there beside them, and one is asked to contribute to the "cause of combatting crime."

Highly incongruous are these so-called "amusements" and the people who patronize them. They don't match at all.

The catch-penny cubby-holes are

the cheapest of the cheap. But the men and women whose pennies they catch appear to be, for the most part, fairly refined and well-to-do.

Perhaps they all like to revert occasionally to kidhood days.

One movie palace on the Boardwalk, the Warner, has a domed ceiling which is a good representation of a summer night's sky, with red stars, platinum planets, and some stars which twinkle a little too obviously and on too regular and slow a cycle.

Nevertheless, the sky in the Warner theater is about as good a show as can be found on the Boardwalk.

Supper clubs are as numerous as they are tiny. Like almost every other enterprise along the seashore, their patronage comes in waves. This year there has been more famine than feasting among them.

If you can manage to stay awake past midnight and should go out for an early a. m. stroll, you will be struck by the absence of night life.

After midnight the Boardwalk becomes the Great Dark Way. Deserted and empty as a country village at the same hour.

An occasional straggler, or a fugitive group may be seen. But they are merely seen and not heard.

If there are any goings-on or galivanting-around (and there probably are), the revelers keep well under cover.

We haven't investigated, but will venture there are a bunch of bomb-proof dugouts around there which accommodate topers and rounders.

Not to carnival shows alone is the Boardwalk confined. There are shops, seafood restaurants, auction sale houses, and permanent exhibits of large manufacturers of nationally advertised goods.

Most of these latter exhibits are well worth investigating. The attendants are courteous, able to answer your questions, and willing to demonstrate the products.

Among these exhibitors are General Motors, Westinghouse, National Cash Register, RCA-Victor, Underwood Elliott-Fisher, International Business Machines, duPont, Heinz, Burroughs Adding Machines, Black & Decker, and Eastman Kodak.

Auction sales are both yes and no. Every once-in-a-while you will run across somebody who believes he has picked up an amazing bargain at one of them. Those who get stung usually keep quiet.

One of them, open afternoon and evening, is invariably packed. The reason, we think, is the auctioneer.

No dollar-fifty-dollar-fifty-going-going-gone-at-a-dollar-fifty shouter is he.

A gentleman first, a man of distinguished appearance and address second, and a speaker of beautifully articulated English third, he could match honeyed phrases and drawing room bows with any character actor on Broadway or in Hollywood. Except George Arliss.

He doesn't beg, he doesn't shout, he doesn't gesticulate. He simply talks. And not for long, either. Sales go very quickly under his direction.

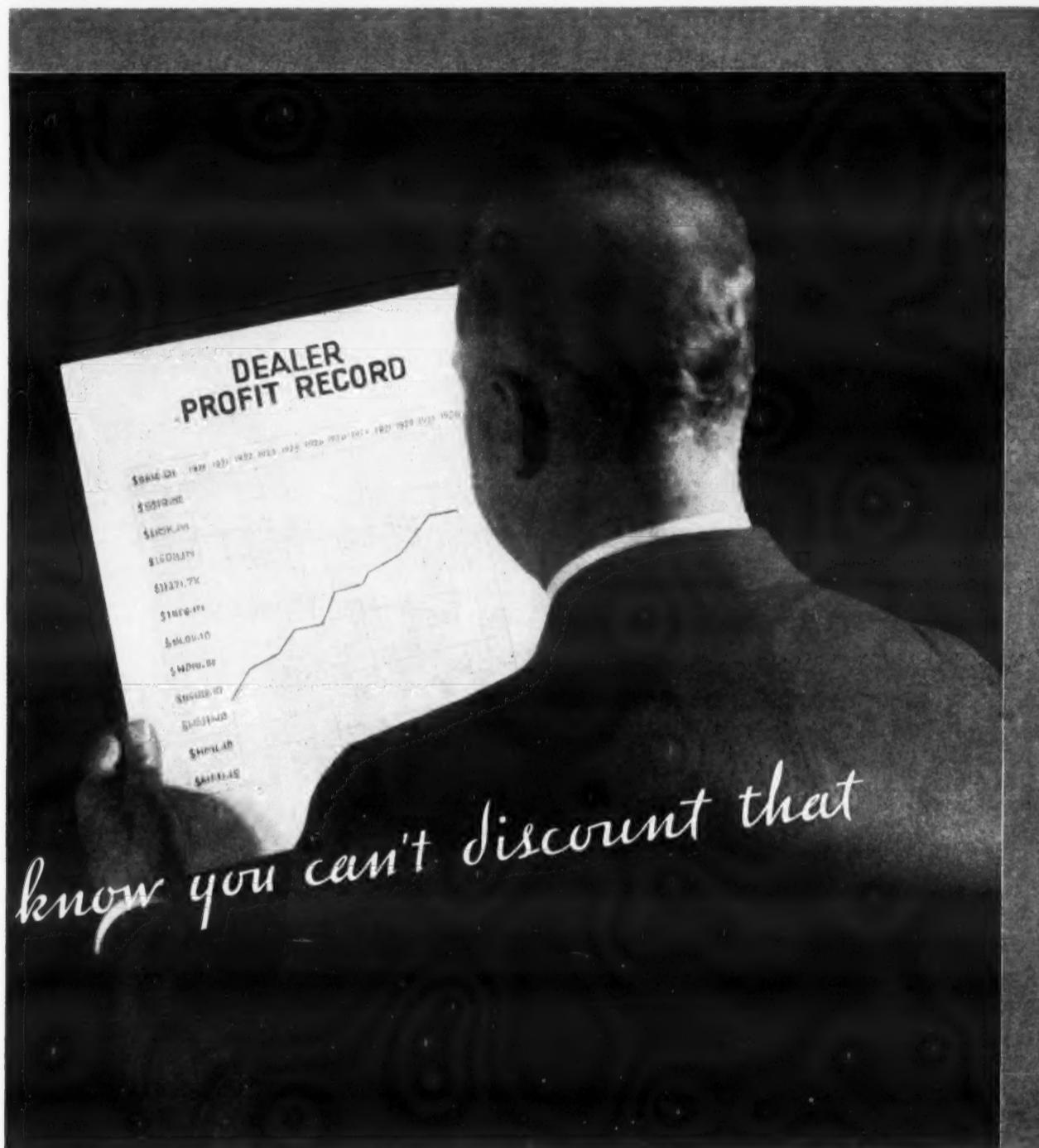
Women melt at the sound of his voice. And their husbands loosen purses cheerfully when the cultured auctioneer's assistant, a beautiful red-haired girl whom Ziegfeld would like to glorify, comes around for the money.

This particular auction sale, which puts oriental rugs, imported lace, gold and silver table service, jewelry, clocks, furniture, and similar expensive articles on the block, has a large percentage of elderly people among its patrons.

Women past 50 sit for hours under the spell of this duke among auctioneers, walk home with a piece of cloth or a jeweled teapot, and feel happy. They've had their money's worth.

HIS PROFITS HAVE BEEN STEADY AND SURE

Frigidaire dealers know you can't discount that



The Frigidaire franchise offers retailers a real opportunity to make money. Here's why.

Frigidaire is a product of outstanding merit that has won public acceptance.

The Frigidaire line is complete, covering all refrigeration needs—both household and commercial. You never miss a sales opportunity with Frigidaire.

When you sell Frigidaire you are offering a PROVEN product, backed by General Motors...giving you a recognized standing in your community.

Frigidaire helps its dealers to sell with powerful national advertising, strong local newspaper advertising...with practical plans...and effective merchandising campaigns that bring prospects *into the showroom*.

New low prices have opened up many new possibilities for sales. Small down payments and liberal

Steadily increasing profits

The Frigidaire dealer is satisfied with the past...confident of the future. Even in the current year when business, generally, is off...many Frigidaire dealers have established new records in sales.

time payment plans make Frigidaire easier to sell. The services of General Motors Acceptance Corporation are available to all dealers for handling your time sales.

Here is your opportunity to make money...real, worthwhile net profits year after year. The actual experience of present Frigidaire dealers PROVES that any retailer who aggressively uses Frigidaire

factory plans can steadily increase his sales.

Liberal discounts make Frigidaire a *profitable* product to sell. And remember, the Frigidaire dealer receives more than just discounts on immediate sales. He is building a business that will pay him substantial net earnings for years to come.

Write for complete information on the Frigidaire franchise. Use the coupon. Do it today.

MAIL THIS COUPON FOR FRANCHISE FACTS

FRIGIDAIRE CORPORATION, Franchise Division.
Dayton, Ohio.

Gentlemen: Please send me the facts about the Frigidaire Franchise.

Name.....

Business.....Address.....

City.....State.....

1-1474

FRIGIDAIRE

A GENERAL MOTORS VALUE

KELVINATOR EQUIPMENT SOLD TO CONNECTICUT SCHOOL

NEW CANAAN, Conn.—The I. B. Woundy Co. has been awarded the contract for installing the following refrigeration equipment in the newly constructed New Canaan junior high school: 1 D-22 Kelvinator, and 1 Kelvinator water cooler for the cafeteria and 1 S-7 Kelvinator for the domestic science room.



Balsam-Wool Sealed Slabs ODORLESS SANITARY

Completely satisfactory Refrigerator Insulation

WOOD CONVERSION COMPANY

Industrial Sales Offices:
CHICAGO, 360 N. MICHIGAN AVE.
New York, 3107 Chanin Bldg;
Detroit, 515 Stephenson Bldg;
San Francisco, 149 California St.

PITTSBURGH WORKERS AID IN SALES DRIVE

PITTSBURGH—All non-selling employees of the Suburban Electric Development Co., Frigidaire distributor, have joined hands with the selling organization in a big 10 weeks' campaign to make the final quarter of the year a quota breaker.

Sixty-three office workers, service men, and others affiliated with this Pittsburgh refrigeration company will search for prospects during the next two months, give preliminary sales talks and arrange appointments for salesmen. Prizes and commissions of 5 for each sale have been hung up for the non-selling employees by A. L. Hattenbach, president of the company.

The employees compose three prospect teams and are engaging in a contest for a team prize. Their daily activity is being charted on a large blackboard just outside Mr. Hattenbach's office.

A goal of 125 prospects a week has been established and from these the sales organization expects to make a minimum of 10 sales. The campaign is being conducted only in the metropolitan territory of the Suburban Electric Development Co.

The three teams are being captained by J. F. Campbell, treasurer, W. L. Bate- man, manager of the order department, and H. E. Schreiber, service manager. The drive is being directed by Quincy P. Carvel, sales promotion manager, and W. S. Dingfelder, sales manager, commercial and provincial division.

BALTIMORE FRIGIDAIRE SALES FORCE HOLDS CONTEST

BALTIMORE—A sales contest has been inaugurated by the Baltimore branch of the Frigidaire Sales Corp. Those of the sales staff who comply with the definite rules set down for the

Midgets Get Cold 'Test'



Three Singer midgets recently stood in a large Majestic unit in a window show put on by Glen E. Sheppard at Ashland, Ky.

campaign, will be rewarded with two tickets for the Navy-Notre Dame football game, which will be played at the Baltimore stadium, Nov. 14.

The sales staff has a quota to fill to secure the rewards. Each salesman is required to make 10 personal calls on prospects on Mondays.

CALIFORNIA FIRM FORMED TO DISTRIBUTE GIBSONS

LOS ANGELES—The California Household Utilities Corp. has been organized with offices at 800 North Spring St., to distribute Gibson electric refrigerators in the Pacific Coast territory.

W. L. Kirkpatrick, for several years connected with Copeland electric refrigerator distributor in California and for the past year and a half, manager of the refrigeration department of the Platt Music Co., is manager of the new corporation.

Mr. Kirkpatrick states that an intensive campaign will start immediately for the purpose of appointing dealers in the territory to be covered by his company.

The Gibson is now being sold by the Platt Music Co., the May Co., and the Wiley B. Allen Co. in Los Angeles territory, the Emporium in San Francisco, and Capwells in Oakland.

DEPARTMENT STORE TRIES MODERN PLAN

BERKELEY, Calif.—The question of the department store versus the home appliance shop as an outlet for electric refrigerators has been solved by J. F. Hink & Son, which operates both.

This concern has conducted a department store in Berkeley for many years, but only in recent years have electric refrigerators, radios and kindred lines been carried.

A start was made by carrying these in the main store, but it soon became apparent that more space would be necessary than could be spared in the store and an exclusive electric appliance shop was opened across the street.

General Electric, Norge, and Frigidaire electric refrigerators are handled in conjunction with a general line of electric appliances, with Julian Carrash in charge of both the main store department and the specialty shop.

"Prospective customers expect to find a variety of makes in a department store," says Mr. Carrash, "and for that reason we are handling three lines of electric refrigerators. Not so much is expected of a specialty shop, which often gives its entire attention to a single make."

"We find that some of our regular department store patrons never seem to think of purchasing such an article as an electric refrigerator where they have maintained charge accounts for years, but go across the street to our electric appliance store, where exactly the same lines are carried."

"On the other hand, there are those who purchase everything possible on their charge accounts."

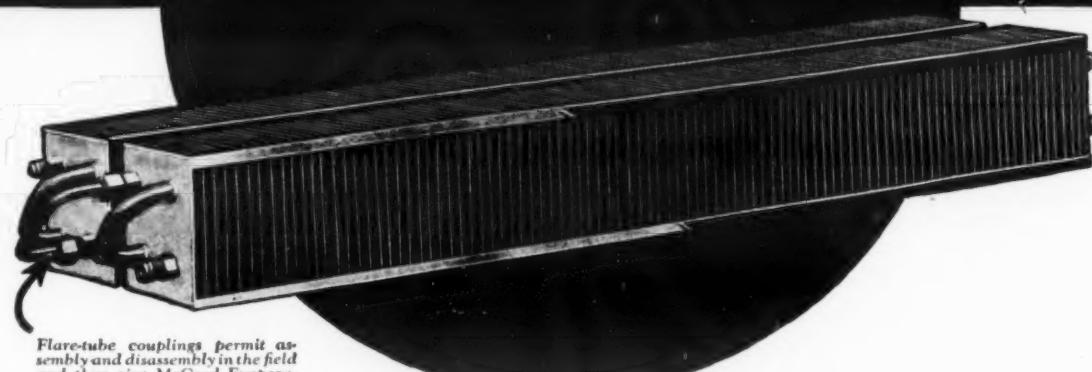
"The opening of the electric appliance shop came as a result of the steady increase in business in the main store and the branch has been found to have many advantages of its own."

"For one thing, we are able to keep open evenings, which is frequently advisable. Salesmen can also concentrate on prospects and are not hindered by general department store activities."

FOUR CARLOADS OF G. E. UNITS FOR APARTMENTS

FORT DODGE, Iowa—The Fort Dodge Gas and Electric Co. has sold a four-carload, single shipment of General Electric refrigerators, that arrived here during the latter part of October. The shipment will go into the Snell, Minerva, Warden and Hotel Warden apartments.

FLEXIBILITY... That Allows Better and Simpler Bunker Layouts



Flaretube couplings permit assembly and disassembly in the field and thus give McCord Evaporators a definite advantage in difficult installations.

Flexibility is one of the biggest advantages McCord Copper-Fin Commercial Evaporators have over other makes. There are only 36 sizes, but they permit a total of 297 combinations that will take care of even those extraordinary bunker conditions that usually call for a special-built job.

For example, let us suppose a bunker needs a unit larger than the door opening. You can install two or more McCord evaporators and join them together inside the bunker. Again, let us suppose there is some obstruction that interferes with the installation of a single unit. With McCord evaporators you can overcome such obstacles by uncoupling them and then recoupling inside the bunker while on the job.

These are simple, but quite ordinary instances where the flexibility of the McCord units give you a very definite advantage and saves costly delay. We shall be glad to tell you more about McCord Copper-Fin Commercial Evaporators. At the same time, we will gladly send you the new McCord Evaporator Catalog which contains valuable B. t. u. data that every man who sells evaporators ought to have.

In your next commercial installation, order a McCord Copper-Fin Evaporator. We are confident of its ability to out-perform other makes you have been using. And we believe it will win your approval so emphatically that you will specify McCord ever after.

REFRIGERATION ACCESSORIES DEPARTMENT
McCORD
RADIATOR & MFG. CO. - DETROIT, MICH.

GUESSING IS UNNECESSARY When Figuring Restaurant Installations WITH TEMPRITE COOLERS

The distributor who figures a restaurant water cooling installation with TEMPRITES knows which of several units will fulfill the requirements exactly, and with the greatest economy.

If the restaurant requires 15 gallons an hour or 60 gallons an hour, there is a TEMPRITE unit of the required capacity. Whatever unit is selected, there is the additional advantage in knowing that the drinking water will always be supplied within a range of a few degrees of the standard setting of 40 degrees exit temperature.

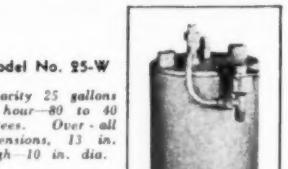
Controlled exit temperatures, the right size unit for any size restaurant, compactness, and ease of installation; these are factors that make the selling of TEMPRITES to restaurants profitable to the distributor and economical for the purchaser. Three of several models in the TEMPRITE line are illustrated. All TEMPRITE coolers are available in various styles of cabinets.

Write for literature describing the entire restaurant line.

LIQUID COOLER CORPORATION
6527 Russell Street
Detroit, Mich.

West Coast Distributors

Refrigeration Products, Ltd., 1110 North Alameda St., Los Angeles, Calif.



Model No. 25-W
Capacity 25 gallons an hour—80 to 40 degrees. Over-all dimensions, 13 in. high—10 in. dia.



Model No. 40-W
Capacity 30 gallons an hour—80 to 40 degrees. Over-all dimensions, 11 in. high—12 in. dia.



Model No. 65-W
Capacity 40 gallons an hour—80 to 40 degrees. Over-all dimensions, 15 in. high—12 in. dia.



MODEL WL73—Finishes: exterior, lacquer; interior, porcelain. Over-all dimensions: width, 31 $\frac{13}{16}$ inches; depth, 26 $\frac{3}{4}$ inches; height, 59 $\frac{1}{8}$ inches. Shelf area, 11.40 square feet. Usable interior volume, 7.28 cubic feet. Ice-making capacity, 96 large cubes—11 pounds. Has hermetically-sealed, trouble-free Quiet Mechanism; conveniently flat, usable Buffet Top; Arm-high 7-point Temperature Selector; Automatic Built-in Watchman, and other WESTINGHOUSE "Completely Balanced" features.



MODEL WL90—Finishes: exterior, lacquer; interior, porcelain. Over-all dimensions: width, 38 $\frac{15}{16}$ inches; depth, 27 $\frac{3}{16}$ inches; height, 59 $\frac{1}{8}$ inches. Shelf area, 14.1 square feet. Usable interior volume, 8.98 cubic feet. Ice-making capacity, 96 large cubes—11 pounds. Has hermetically-sealed, trouble-free Quiet Mechanism; conveniently flat, usable Buffet Top; Arm-high 7-point Temperature Selector; Automatic Built-in Watchman, and other WESTINGHOUSE "Completely Balanced" features.

GREATER NET EARNINGS

through trouble-free performance

THE proved successful Westinghouse Refrigerator offers the electrical field an unusual profit opportunity. So keen has the buying enthusiasm for the Westinghouse been that many retailers exceeded their 1931 quotas months ago with greater net earnings on every sale. Chief among the reasons for this unusual success are the many exclusive features which have given Westinghouse its enviable trouble-free performance records. Consider the now famous Westinghouse forced draft, hermetically-sealed Quiet Mechanism concealed in flat, usable Buffet Top, Arm-high 7-point Temperature Selector and Automatic Built-in Watchman. The last feature—an exclusive Westinghouse engineering triumph—not only stops, but starts the mechanism when unusual conditions have interrupted operation.

NEW MODELS FOR NEW MARKETS

There is a Westinghouse Refrigerator for every home and every budget. Two new popularly priced models recently announced now make a Westinghouse Refrigerator available to those additional thousands of families—many right in your locality who may have felt they could not afford one. Model WL73 has a capacity of 7.28 cubic feet and sells for only \$240. Its companion, Model WL90, has a capacity of 8.98 cubic feet and sells for \$340. Prices are f. o. b. factory.

Both units have all basic "Completely Balanced" features and steel cabinets with sanitary porcelain linings.

INCREASED NATIONAL ADVERTISING

To tell the Westinghouse message to a nation-wide audience of homes, Westinghouse has greatly increased its advertising program. Double spreads and pages in color will be featured in leading national publications reaching an ever-increasing market. To aid the retailer effectively, Westinghouse offers him interesting and inviting descriptive literature, cooperative newspaper advertising, complete mail service, window displays and proved merchandising counsel.

WRITE FOR DETAILS OF YOUR PROFIT OPPORTUNITY

A limited number of Westinghouse franchises are still open. Maybe there is one in your territory. To get full information about the profit opportunity the Westinghouse franchise offers, use the coupon attached or, better still, wire today.



WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY
Merchandising Department, Mansfield, Ohio

Please send me details of the WESTINGHOUSE Refrigerator Franchise.

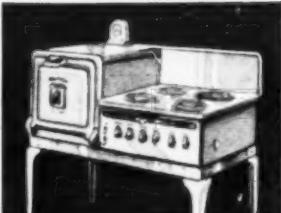
Name _____

Address _____

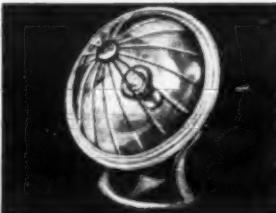
Westinghouse Refrigerator

The Name "WESTINGHOUSE" is your guarantee

Westinghouse Flavor-Zone Electric Ranges offer housewives cooking equipment modern as the minute. This new Westinghouse



Cozy Glow is an ideal, portable heat supply for frosty mornings in bathroom or nursery. A breath of summer in mid-winter!



What woman does not want a Westinghouse Master-Matic Iron? The country's leading iron and a typical product of West-



inghouse engineering ability. The smart Westinghouse Columaire Jr. De Luxe Radio is of excellent design and finish. Harmo-



nizes well with all types of furnishings. The Westinghouse line of electrical equipment for the home meets every need.

**Little Stories of Interesting
PEOPLE
In the Refrigeration Industry**

Dog Story

H. R. Blackman of New Milford, Conn., reports that a prize dog sold an order for him when all the persuasion he possessed had failed utterly. The story goes like this:

A luncheonette in New Milford had an ice box and butter box. Mr. Blackman tried to sell the owner Frigidaire equipment, but because of price was able to get an order for the butter box only. The proprietor said he would get the rest next spring.

About a week after the Frigidaire butter box installation was made, the luncheonette owner called Mr. Blackman on the phone and asked him to come over right away. He had decided to buy electric refrigeration. When Mr. Blackman inquired what changed his mind he got this story:

The proprietor of the luncheonette owns a prize dog, which he kept tied to one leg of the ice box. He went to the front part of his store for a few minutes, and upon returning found a big wet spot beside the dog. The dog was taken to the back yard.

A couple of hours later the same thing occurred. This time the owner got a husky switch and worked on the dog without reserve.

Some time later, after all evidence had been removed, he came back only to find the same situation. This time he took the dog to the back yard and gave it a licking that he said the dog would never forget; and he tied the offending canine in the yard.

Returning to the store he found that the dog was in no way responsible, for the old ice box had sprung a leak.

His conscience so bothered him that he bought a W-6 model Frigidaire in an effort to make amends for the abuse he had heaped on the dog.

Golden Tenor

At the banquet given to Leonard distributors, Friday, Oct. 23, in Detroit, the Valve enjoyed a hearty meal while sitting between A. M. Taylor, advertising director of Kelvinator and Leonard, and J. M. Fernald, Kelvinator commercial manager.

The engaging Mr. Taylor, we discovered, has a tenor voice of excellent timbre, range, and control; and in the songfest that interluded the soup, salad, and entree, the Taylor tenor—like Abou Ben Adhem's name—led all the rest.

Mr. Fernald had just returned from New Orleans, where representatives of the entire refrigeration industry have been encamped for weeks and weeks, attempting to get contracts for the installation equipment for the gigantic New Orleans public market.

High Sales Cost

According to Mr. Fernald, the refrigeration delegation to New Orleans has averaged 40 men per day for the last six weeks.

More than 30 concerns have bid on the job, which has been hanging fire for a long time. And the list of 30 reads almost like a roll call of the nation's manufacturers of refrigerating machines and cabinets.

So important has this job been deemed (New Orleans municipal officials have apparently staged the whole thing as effectively as former Health Commissioner Kegel of Chicago limed the Code War of 1929), that refrigeration concerns have not only shipped squads of salesmen to the scene of action, but chief sales executives have gone down as well.

During the last two or three months the Valve has contacted a great many refrigeration organizations.

And it seems to us that at almost every one of these concerns one of the men we wanted to talk with was down in New Orleans "sewing up that big market contract."

The sales cost on the New Orleans public market equipment apparently is going to reach a record high.

The Gang

It has always seemed to us that the Kelvinator top-boys form about as brotherly a "gang" (not in the Capone sense of the word) as any group we've come across. They work hard, play hard, and laugh hard—all together.

The speakers' table at the Leonard banquet accommodated the "gang." They had a great time.

President Mason habitually wears a poker face, and seems as unemotional

THE EXPANSION VALVE

By George F. Taubeneck

**Little Stories of Interesting
IDEAS
In the Refrigeration Industry**

as a turbine-generator. Yet when he is surrounded by his "gang," he laughs long, frequently, and uproariously.

After sitting in on a dizzy round of banquets during the past several weeks, we're still convinced that Vice President H. W. Burritt is one of the most skillful toastmasters in the business.

He knows when to turn on the steam, and when to turn it off. If the entertainers fail to put an act or a joke across, Mr. Burritt comes to the rescue. Best of all, a program moves quickly under his guidance.

His characterization of Howard A. Lewis, Kelvinator treasurer, immediately before the latter delivered the significant speech reported in full in the last issue, was remarkably apt. We quote:

"He has the faculty of seeing the whole picture."

A. M. Taylor

One man who agrees heartily with the thought expressed in our editorial in

the ice box business high and dry. Early this year an advertising campaign was started on a quality line of ice cabinets, but the campaign was abandoned when department stores began to cry for cheap boxes.

This year, we are told, at least 75 per cent of all the ice boxes sold were of the flimsiest, cheapest construction.

Leonard refused to make boxes like that, and quit the business.

McElhinny Perspires

Another man who has some good stories to tell about this big New Orleans market job and its attendant camp of refrigerationists is W. D. McElhinny, vice president in charge of sales of Copeland.

After the New Orleans situation began to get warm, "Mac" hopped on a train and got on the job himself. There's nothing he likes to do better than go out and land a big order. Still a hand-to-hand salesman at heart.

Pirate Raids Treasure Chest!



This wise mother knows that the finest treasure chest she can offer a growing child is an electric refrigerator stored with good food.

The last (Oct. 28) issue, "The Job Ahead," is A. M. Taylor, good-humored sandy-haired, hard-driving advertising director for Kelvinator and Leonard.

Mr. Taylor has undertaken the job of doing his bit to educate Leonard jobbers in specialty selling methods and the necessity for using them.

Kelvinator distributors, he says, understand both the how and why of direct salesmanship. Leonard jobbing firms however, have foundation births ranging back as far as 100 years. They must be sold on the idea and taught the procedure.

Salesmen for these firms have been accustomed to carrying around a catalog of a hundred or a thousand items which they point out to dealers. It simply won't do, Mr. Taylor maintains for Leonard refrigerators to be listed in those catalogs.

Mr. Taylor and his cohorts out on Plymouth Road have prepared a series of books and other forms of printed salesmanship for the jobber, the dealer, the salesman, and the prospect. Following these books one can't go wrong, Leonard officials believe.

"I expect our men to memorize these sales talks, whether they actually use them word-for-word or not," says Mr. Taylor.

"We were just a bit surprised," smiles Taylor, "at the readiness with which they took us up."

"We had expected some arguments from a few of them. But they came around, signed up for promotional material, and acted as if they liked it!"

Leonard jobbers are not the only old-line wholesalers who are swinging into step with the ranks of modern take-it-em merchandisers.

This mild revolution is taking place in many other old jobbing houses today. And refrigeration is the cause, the prime mover.

Leonard, after all these years, has left

The Copeland sales chief maintains that New Orleans holds all the championship titles for humidity.

Not that he doesn't like the place, understand. He thinks that its romance and its gaiety, its sights, sounds, smells, and colors make it as absorbing as an Arabian Night come to life.

But one needs sponge-like clothes down there to absorb the perspiration. "Mac" says that the humid New Orleans climate puts more strain on a refrigerator, particularly the cabinet, than Death Valley.

When it came time for Mr. McElhinny to present his case before the powers-that-be down there, he was so hot that he could talk about refrigeration and put his heart into it.

He warmed to the subject, and his hearers warmed to him, with results satisfactory to both.

"Mac" says he didn't talk Copeland. He talked refrigeration. And by the time he had concluded his oration on the refrigeration requirements of food, the city Solons were ready to believe anything he told 'em about Copeland.

Mr. McElhinny foresees the time when the successful commercial refrigeration salesman won't sell a machine at all, but a service.

He will walk into a food store, look it over, and show the proprietor how to make more money by better display methods, by more efficient layout, by special merchandising stunts, by more effective advertising.

Incidentally, he will check up on the food tradesman's refrigeration equipment, which is nearly always inadequate for a growing business, and show him how to save some more money by installing more refrigeration facilities.

This commercial salesman of tomorrow (a near-at-hand tomorrow

—so near that it could be today) will speak in the grocer's tongue and idiom.

He will know a great deal about food, and about the merchandising of food.

And he will be an avid reader of Refrigerated Food News, which will furnish him with factual ammunition!

Sanitary A B C's

All of which reminds us of a friend we saw the other day for the first time in a couple of years. Two years ago he was taking advanced courses in engineering. Was living quite humbly and ruggedly.

Now he's driving a brand new Pierce-Arrow roadster, thinking of buying an airplane, and living high, wide and handsome. We asked him how he did it. The answer was simple.

He sells municipal sanitation equipment to city councils. And he has been making competing salesmen, many of whom had been stars for years, look like apple venders.

His predecessors and competitors had gone before groups of aldermen, and talked in engineering terms, giving technical reasons why their equipment was better than that of rivals.

Harry, realizing that most of this sort of talk was going over the heads of the fat-brained councilmen, tried a new method. He explains the A B C's of municipal sanitation.

"Here is a need," he says. In Anglo-Saxon monosyllables he outlines a method for answering the need. "And this piece of equipment," he concludes, "will do that job."

Then he takes up B, tells what must be done, and names the device to do it. And so with C.

Able to understand him and his equipment, the councilmen pat themselves on their respective backs for being so smart. And they buy the machinery Harry is selling.

Harry, Mr. McElhinny would aver, has the right idea.

Jimmie Davin

A man of ideas is Jimmie Davin. His evolution from phonograph salesman to New York and New England district manager for Norge has taken 17 years, and for every one of those years Jimmie has produced a new set of ideas.

In 1914 he joined the New York Talking Machine Co., Victor's largest distributor.

After seven years of work for this concern, the advertising and promotion novelities he had created caught the eye of Arno B. Reinke, president of the Reinke-Ellis Co., Chicago, manufacturer of such novelties. Mr. Reinke signed up Jimmie, who then moved to Chicago.

While working for Reinke-Ellis, he entered and won the Owl Drug Co. prize for advertising ideas. Also, he attended the Medill School of Journalism at Northwestern University.

Back to New York City he went in 1924 as sales manager for Ormes, Inc., Victor distributor. Came then some experience in promoting Ampico "Recreations" instruments for pianos.

He joined the Grigsby-Grunow Co. in December, 1928, as sales promotion manager. Within two years that concern made and sold more than two and a half million radios. Jimmie's ideas helped.

We won't attempt to list the Davin ideas which were utilized in promoting the sale of Majestic radios and refrigerators. They are too numerous. But those who are familiar with the Majestic program of 1929 and 1930 will remember some of the more spectacular ones.

Davin took part in the general exodus from the Grigsby-Grunow concern which occurred when Bill Grunow was ousted, and was one of the group which took part in Grunow's abortive attempts to establish a radio and refrigeration manufacturing concern of his own.

Mr. Davin has a son, Jimmie, Jr., who holds the national junior 220-yard outdoor ice skating championship.

In the short time that the Davins have been in the east since Jimmie, Sr., became a Norge man, Jimmie Jr., has won three special races.

Two months hence the latter will be 16. And then he's going after the American intermediate title.

Sales Hints from Eureka

Not long ago the Valve happened to pick up a large yellow broadside. At the top of the page in glaring, red-inked stud-horse type were these words:

"Learn this demonstration and you can sell Eurekas."

Below were eight columns of type telling the salesman just what to say and do from the time he enters the house (doesn't suggest any methods of getting in) to the moment when the prospect says "no."

Many of the paragraphs are quite revealing. Some of them we're going to quote. Might give you some ideas. The paragraphs printed below were plucked from scattered portions of the "canned sales talk."

"Immediately upon entering the house, casually remark about the many demonstrations you must make that day. Business good—everybody interested—step lively. Make quick survey of living room and other rooms that can be seen. Relieve tension—step up to a picture lamp—admire something. Look for children—or their toys. If seen—then talk about them. Show interest. Your prospect likes to converse about them."

Give Her a Chance

"Casually remark that you assume she and her husband have talked about getting a cleaner. (Hesitate). Give her a chance, and she will give you the information you want."

"And I know you're not satisfied or contented with just make-believe appearance are you?" Give her a chance, she'll say 'No'."

"Honestly, it's a plain case of your deciding in your own mind, as to whether you want clean rugs—or dirty ones. Whether you want to conserve your strength—your energy—or prefer going on, in your old way, trying, trying—trying to accomplish the impossible, with a sweeper. Sooner or later, you'll decide right—and I know you will. I am one man who knows that household tasks are not just 'child's play'."

"I get a big thrill out of cleaning rugs—you might not think so—but I do. (Laugh—joke)."

"Appear well satisfied with your demonstration, and the way the Eureka has performed for you. Remember—enthusiasm is contagious. Your prospect may catch it."

Under Pressure

"That shows what other people think—and it sure 'backs up' your own good judgment. And that's not all, either. Just think—the retail price, even in our Club Plan (Easy Payment Plan) is only \$..... Of course, you can save \$..... by writing a check for the full amount, or by paying say, (hesitate, as if thinking), \$25.00 down and the balance in thirty (30) days. A very large per cent of my customers do it just that way. The saving is certainly worth while—and I assume, of course, you'll want to take advantage of it, too."

With this last remark, salesman should take out order book and pencil, hold in hands—(let prospect see them)—then begin turning back the sheets as if looking for sheet on which to write up order. Do this right in front of prospect. Just assume she intends to place order immediately.

"If the prospect is 'sold' and intends to place an order immediately, very probably she will say, 'Yes'—or make immediate inquiry as to the amount of the initial payment and the succeeding monthly payments. A quick 'close' can, therefore, be expected."

"If the prospect is not agreeable to placing an immediate order, then the following statements can be expected as a result of the question—'You'll want to take advantage of the discount, too?'

1. 'We can't afford to buy.'

2. 'I must consult my husband.'

3. 'I want to look around, etc.'

"To any of the above excuses, the salesman must register surprise—disappointment—'Oh—' (Draw it out). Surely you don't mean that?"

"They must not be accepted literally, as experience shows they are, for the most part, subterfuge, or just common barriers behind which the prospect runs to cover. They, therefore, pave the way and justify a final attempt for a 'Close' Under Pressure."

What's in a Name?

C. T. Mutchner of Dayton, calls our attention to the following amusing item from the Oct. 17 New Yorker. It speaks for itself:

"A lady back from a visit in Italy is deeply impressed with the power of American advertising."

SLOAN FAVORS PLAN OF SEN. LAFOLLETTE

WASHINGTON, D. C.—Alfred P. Sloan, president of the General Motors Corp., told a special sub-committee of the United States senate at a hearing Oct. 30 that he favored a national economic council as proposed by Senator Robert LaFollette's bill S. 6,215.

"I'm entirely in favor of a national economic council," declared Mr. Sloan. "I'm sure it would mean progress. If you could get a group of men who had responsibility it could do a great deal of good. I think we have got to make a start toward economic stability."

Approves National Plans

Mr. Sloan stated that he heartily approved forms of national planning which would accelerate public works to take up the slack in business.

Exports from the United States will probably be curtailed even after the industrial depression is over, he pointed out. An international cartel, such as the one proposed by Andre Citroen, "the Ford of France," at the World Conference of Major Industries, is entirely impractical, Mr. Sloan thinks.

"I'm against the government going into business," he said. "We must realize that, although industry should have some form of cooperation, it has been built up on its own initiative."

Opportunity in Auto Field

An exceptional opportunity for regulating production has existed in the automobile industry, Mr. Sloan testified.

Approximately 165,000 workers, all on part time, are now employed by General Motors, he stated. Since the beginning of 1930 workers have drawn \$50,000,000 from benefit funds, and \$150,000,000 is still available.

"We're constantly trying to develop new things to manufacture," he asserted. "Technological improvements are being made all the time."

More elasticity in the Sherman anti-trust act is needed, averred the General Motors president.

"There's too much individuality in industry," he said. "To make stabilization uniform, police powers become necessary."

Swope Sees No Good In Senator's Plan

WASHINGTON, D. C.—Gerard Swope, president of General Electric Co., does not believe that Senator LaFollette's bill to set up an economic council would do any real good.

In turn Senator LaFollette, who heads the senate manufacturers' sub-committee before which Mr. Swope presented his plan for unemployment relief, gave a critical opinion of the Swope plan.

Mr. Swope said that some sort of economic advisory council set up by the government might do very well if it were built as a super-structure to his trade association suggestions.

To set up a council on the present unstable foundation, he said, would be building from the top down.

LaFollette contended that if a council had been functioning before the present business slump it would have seen the danger signal ahead and would have warned industry.

The trade association organization would set the signals long before the council, Swope said.

OAKLAND WOMAN TAKES KELVINATOR PRIZE AWARD

(Concluded from Page 1, Column 3)
were turned over to the judges.

Winners of DeLuxe Kelvinators include Mrs. W. R. Clark, Columbia, Mo.; Charles H. Bone, San Francisco, Calif.; Schuyler C. Hodge, Miami, Fla.; Mrs. Walter A. Bratton, Walla Walla, Wash.; Mrs. M. S. Mason, Upper Montclair, N. J.; Mrs. Henry DeBoost, Eugene, Ore.; Mrs. Gordon E. Dean, Durham, N. C.; William Carroll, Wichita, Kan.; J. W. Bourland, Jr., Dallas, Tex., and E. C. Morrison, Memphis, Tenn.

Standard Kelvinator models will go to E. Erich Bruhn, Denver, Colo.; Lloyd L. Millard, Providence, R. I.; G. Z. Marshall, Anderson, S. C.; Charles T. McPherson, Portland, Ore.; Mrs. Annie Doane, Sparta, Wis.; Clyde A. King, Tulsa, Okla.; Sigsbee M. Betts, Richmond Heights, Mo.; Mrs. C. L. Carlton, Greensboro, N. C.; Sedley Dunlap, Somerville, Mass.

John Oliver Emmerich, McComb, Miss.; Mrs. Jean Anderson, Decatur, Ill.; B. D. Chenoweth, Jacksonville, Fla.; Mrs. Eunice Keifer, Santa Monica, Calif.; James C. Townsell, Jr., Parkersburg, W. Va.; L. L. Graves, Kansas City, Mo.

Mr. and Mrs. H. B. Brigham, Oklahoma City, Okla.; M. N. Berger, Milwaukee, Wis.; Mrs. C. E. Hudson, Dallas, Tex.; Lake L. Walker, Akron, Ohio; Albert A. D'ondt, Philadelphia, Pa.; Mabel Kirkwood, Millspaugh, Anderson, Ind.; B. A. Rowe, San Francisco, Calif.; E. W. Scramlin, Greenacres, Fla.; J. R. Dilley, Washington, D. C.; Melina di Santi, Philadelphia, Pa.

Nearly EVERYBODY

Knows the name

Armstrong

... But that is only one reason for insulating refrigerators with Temlok, Armstrong's new, improved, low-cost, cut-to-size fibreboard

WHY deal with "x" quantities? When you insulate refrigerators with Temlok, you can announce that this new, improved, low-cost insulation is *made by Armstrong*. And the name Armstrong is a known quantity—nationally known as a leader in the production of high grade insulations and as the maker of fine linoleum floors.

Now Armstrong's Temlok offers manufacturers two new values—lower conductivity and lighter density. Offers, also, rigidity, structural strength, lack of odor, and resistance to mold or bacterial growth. All this *without any extra cost!*

These qualities are permanent—because Temlok is lifetime insulation. It is fabricated from the heartwood fibres of southern pine. These fibres have been resin-impregnated by Nature. They are sturdy, strong, and moisture-resistant. When they are made into insulation board they retain these qualities. Temlok stays efficient.

Economy is outstanding. Temlok's initial cost is low—surprisingly low. Its installation cost is also low. For Temlok is furnished in fabricated sets, cut to size, ready for convenient, economical installation. You save time. You save labor. You save money.

You can have complete information and free samples of Temlok, on request. Address the Armstrong Cork & Insulation Company, 917 Concord Street, Lancaster, Pennsylvania.

Armstrong's
A
Product

Armstrong's
TEMLOK
REFRIGERATOR INSULATION

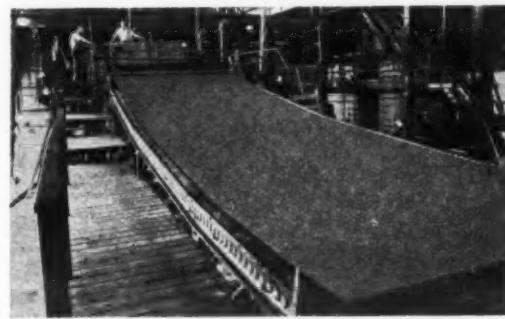
TEMLOK in the making!



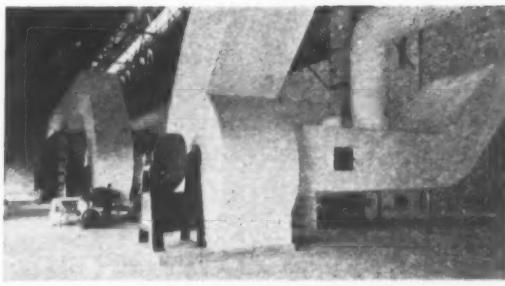
Main conveyor bringing fibre chips to Temlok mill. Experimental building in right background.



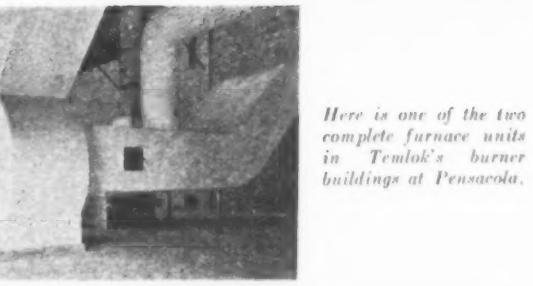
Two men can handle this 16' x 12' board, 1" thick and weighing approximately 175 pounds.



Coming from the forming machine. Background shows part of first and second floor of pulping building.



Note the sturdy appearance of the Temlok boards as they are placed in a warehouse.



Here is one of the two complete furnace units in Temlok's burner buildings at Pensacola.



Temlok is made from the heartwood fibres of southern pine. View shows raw material.

ARMSTRONG CORK & INSULATION CO.
917 Concord St., Lancaster, Pa.
Please send me complete details regarding Armstrong's Temlok Refrigerator Insulation.
 Please send sample.
Name _____
Street _____
City _____ State _____

WESTINGHOUSE NAMES AD DEPARTMENT HEAD

EAST PITTSBURGH—Ralph Leavensworth has been appointed general advertising manager of the Westinghouse Electric & Mfg. Co., according to an announcement made today by J. S. Tritle, vice president and general manager.

He will have charge of all advertising and publicity activities of the company, the announcement reads, including the advertising division of the merchandising department, now centered in Mansfield, Ohio.

The business career of Mr. Leavensworth, prior to his association with the Westinghouse company, has been one in which sales and advertising administrative work have been closely paralleled.

Graduating from Hamilton College, Clinton, N. Y., in 1914, he became associated with the Y. M. C. A., with headquarters in Cleveland and remained with that organization four years. After the war he joined the Standard Parts Co., also located in Cleveland, and except for a short period, during which he served as personnel director for a publishing firm, he was advertising manager of this concern, until 1923.

In that year he became an account executive for Paul Teas, Inc., an industrial advertising agency. He remained with this firm six years, becoming in that time part owner of the company.

Jan. 1, 1930, he joined the Austin Co., of Cleveland, one of the world's largest engineering and building organizations, as assistant general sales manager. In this work he served in an executive capacity on sales, administrative and advertising work concerned with this international organization.

His appointment as general advertising manager of the Westinghouse company followed. He will have his office in the East Pittsburgh headquarters of the company.

Mohawk on Wheels



A trailer, in which models of Mohawk electric refrigerators and Lyric radios are carried, is used by the National Accessories, Inc., distributor in Iowa and Nebraska territory.

Taxidermist Stores Animals in G. E.

KINGSTON, N. Y.—Arthur Tillson, taxidermist, will use a 60-ft. commercial General Electric cabinet to keep animals until they are stuffed.

For the past two years, the taxidermist has used a 9-ft. cabinet.

The pheasant season will bring the new cabinet into use, as dozens of birds are brought in at a time and stored at 24°.

VAN-ASHE RADIO CO. WILL DISTRIBUTE MOHAWK LINE

ST. LOUIS—Van-Ashe Radio Co. has been appointed distributor of Mohawk electric refrigerators and Lyric radios in the St. Louis area, according to an announcement by Tom H. Phillips, district manager for All-American Mohawk Corp.

The St. Louis company was organized 10 years ago and has gradually expanded its sales quarters until it moved into its own quarters at Tenth and Walnut Sts. in 1930.

William W. Van Sickles is president of the company while his three sons are associated with him in the business. George W. Van Sickles, treasurer and general manager, was a radio engineer in the U. S. Navy during the war; and Elmer C. Van Sickles, vice president, was a member of the Illinois Athletic club track team prior to 1923.

L. R. Van Sickles is associated with the company also and C. H. Morrill, a member of the board of directors, is chairman of the board of directors of the St. Louis Chamber of Commerce.

PROVIDENCE FIRM NAMED SERVEL HERMETIC DEALER

PROVIDENCE, R. I.—North Eastern Radio, Inc., has started selling Servel electric refrigerators. This is a retail concern.

People Want Service, Oil Burner Firm Executive Says; Products Secondary

By W. J. Smith

Vice President and General Manager, Cleveland Steel Products Corp.,
Vice President, American Oil Burner Association.

MANY manufacturers—men who are, and always have been, primarily "production-minded" or "engineering-minded"—are too much inclined to believe that prospective purchasers are just as much interested in, and can be made just as enthusiastic about, the mechanical superiorities of a product as are the men who "live with" the product—who are responsible for its design and manufacture, from original conception to finished product.

The actual facts of the case, however, are that average people—the people to whom we must sell, if we are to continue in business—know but little, and care less, about "gadgets and what-nots."

Convenience, Comfort Factors

Instead, the first thing they want to know is what a product will do for them, what it will mean to them in terms of increased convenience and comfort, in pride of ownership and value.

In short, today people buy service—and they always will. The product itself—how it is made—is entirely incidental.

To my mind, this is a fundamental of selling any product. Today very few organizations lose sight of it. However, manufacturers have not always been so keen and alert.

Evolution of Methods

Study the history of any industry producing the so-called "luxury" products—automobiles, radios, electric refrigeration, even products like vacuum cleaners and washing machines—and you'll discover that the selling methods in almost all of them went through the same evolution.

During the first selling phase of these products, great stress was placed on the various mechanical parts that contributed to the performance of the product as a whole. Automobile selling affords a striking example. Many of us can remember when the Continental motor or the Firestone tires or a certain make of carburetor were great "selling points."

Taken for Granted

Today, motors and tires and carburetors are taken for granted by manufacturers and buyers alike. The things that sell automobiles are comfort and speed and beauty and value. This has been conclusively proved to be the effective way to sell automobiles.

Oil burners are no different from

Swing the sale . . . build good will with PYREX REFRIGERATOR DISHES

LITTLE added features often carry great weight in the final decision to buy . . . always make a favorable impression on prospective customers. • Pyrex Refrigerator Dishes add a convenience to the refrigerator that women appreciate. Made of the famous Pyrex heat-resistant glass, these dishes do triple duty . . . they may be used for baking, serving and refrigerating. Their ability to stack saves refrigerator space. • Single dishes retail for as little as 85¢ . . . set of four, different sizes \$4.40. • Get Pyrex Refrigerator Dishes from your jobber . . . or write to Corning Glass Works, Corning, New York.



PYREX

REFRIGERATOR

DISHES

Trade-mark "Pyrex"
Reg. U. S. Pat. Off.

THE Universal Cooler Line for 1932 will soon be ready. In keeping with the Universal policy, it will possess numerous refinements and improvements but no radical or major changes, and will, as always, offer unquestionably sound values in dependable electric refrigeration—features that have been responsible for its steadily increasing popularity over a period of nine years. Write or wire for complete details.

Universal Cooler Corp.
Detroit, Mich. — Windsor, Ontario

automobiles or radios or electric refrigerators in the way they can be most successfully sold. Our organization, the Cleveland Steel Product Corp., for one, long ago decided that our Toridheet oil burner would interest prospective buyers and win its way into new homes only if we first sold the advantages of Toridheet ownership.

Public Education

Most oil burner advertising today has advanced to the final stage—that of selling one specific make of oil burner. Practically every oil burner advertiser has assumed—and correctly, I believe—that the desirability of oil heating has been pretty firmly implanted in the public mind and that his advertising should be devoted, first of all, to "plugging" his own product.

No oil burner advertising, however, as I view it, should entirely disregard stressing the advantages of oil heating. I don't believe the public has been "educated" yet to a point of universal acceptance.

Sell Benefits First

The point I make is that actual selling—the efforts to persuade the prospect that he or she wants your product in preference to any other—must start with selling the benefits—the advantages—of heating with oil. And I emphasize again the fact that "bolts and nuts" mean nothing to buyers unless the salesman can present mechanical features in terms of service.

Hundreds of salesmen have adopted this fundamental selling and use it almost invariably, even in cases where the prospect freely admits, even insists, that he is "sold" on the desirability of oil heating.

Realized Advantage

Practically every time, there is some advantage of oil heating which the prospect has not fully realized, probably because it has not been presented to him sufficiently impressively and dramatically.

Once the salesman has made sure that the prospect fully realizes what oil heat will mean to himself and his family—once the salesman has convinced the prospect that he wants oil heat—more than half the selling job is done.

From this point a good salesman—one who knows his product, the company who makes it and the dealer who sells it, "inside and out" and "backward and forward"—can demonstrate the superiorities of his particular product, and close the sale, in a minimum of time.

Stick to Fundamentals

In selling, let's not stray too far afield from the fundamentals. It is essential to impress prospects with the advantages of your own product, of course—but I believe that, for a good while to come, the time for selling your own specific make is after you've convinced the prospective buyer that he can't do without that type of product.

THREE FRIGIDAIRE GROUPS ATTEND ATLANTA MEETING

ATLANTA—Georgia, South Carolina, and North Carolina Frigidaire salesmen, who equalled their quotas during the third quarter, were guests at the Georgia Tech-Carnegie Tech football game here Oct. 10.

Following the game, the salesmen attended a banquet at the Henry Grady hotel at which prizes for the quarter were presented by J. B. Reeves, Jr., regional manager.

Gaines Harrison, Columbus Refrigeration Co., Columbus, S. C., was awarded the first BTU club membership for selling his year's quota. S. M. Hoss, Rome, Ga., and D. E. Boozer, Augusta, Ga., have equalled their quotas also but they were not present at the meeting.

KULAIR Electrical Refrigerating Products Simplicity, quality, efficiency and capacity unequalled. A size for every use.

Compressors from 95 Lbs. to 4300 Lbs. I. M. C.



NO. 1300 COMPRESSOR
Single Cylinder 1 1/2 x 1 1/2
300 to 425 R. P. M.

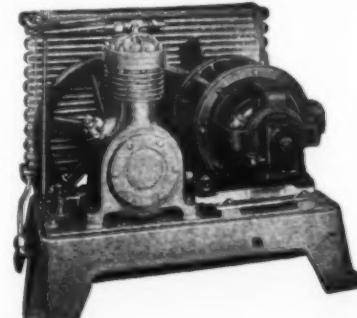
Condensing Units from Small Domestic to Large Commercial Capacities.

AIR COOLED WATER COOLED
METHYL CHLORIDE or SULPHUR DIOXIDE

POLICIES PRODUCTS PRICES

Providing Proper Profit To All Distributors.
WRITE FOR FULL INFORMATION TO

KULAIR CORPORATION **PHILADELPHIA, PA.**



COMMERCE BULLETIN ON ELECTRIC DEALER

WASHINGTON, D. C.—If the experience of an unnamed "large establishment" handling electrical goods can be regarded as typical of the electrical industry, the greatest problem of the industry is in over-extension of credit, according to report just issued by the Department of Commerce.

The study, undertaken in cooperation with the National Electrical Wholesalers' Association covered only the one "large establishment," which handles construction equipment, industrial goods, radio and accessories and miscellaneous appliances and has a trade area extending into three states.

Bad debt losses were found to be wholly responsible for the marked increase in operating costs of this firm, the department found. These costs represented from 16.8 per cent to 28.1 per cent of sales over a three-year period.

Omitting these losses, the study showed, operating expenses showed a slight downward trend in the same length of time.

The credit difficulties of this concern were found to result largely from concessions of liberal credit terms allowed in an effort to build up sales volume in this territory," the department said.

The classes of customers served varied more widely than with most types of wholesale houses, ranging from contractors, retailers and dealers to industrial concerns and municipalities, and increasing the problems of profitable customer selection."

The study showed 42 different commodity groups were handled by the wholesale house. Of these, 22 showed a net profit and 20 a net loss. Commodity groups, which were responsible for a considerable part of the loss sustained, included conduits and fittings, wiring accessories and fuses and accessories. Construction materials and heating appliances also were in the loss column.

The commodity groups registering the greatest net gains were radio and accessories, safety switches, certain cables and fittings, and the standard types of electric lamp.

The department found that the principal factors tending to throw a commodity group into the loss column were high investment and storage charges resulting from excessive inventory, high cost of routine selling and clerical effort resulting from small unit sales and, in some cases, costs of physical handling.

In a few instances commodity groups appeared to fall into the unprofitable class because of inadequate gross margin.

Take Advantage of These Money-Saving Subscription Offers Before Rates Go Up

**These Offers Expire
Dec. 31, 1931***

	Electric Refrigeration News (Issued Weekly)		Refrigerated Food News (Issued Monthly)		Both Electric Refrigeration News and Refrigerated Food News	
	1 Year	3 Years	1 Year	3 Years	1 Year	3 Years
1	\$2.00*	\$5.00	\$1.00	\$2.50	\$2.50	\$6.50
5	1.75	4.50	.95	2.40	2.25	6.00
10	1.50	4.00	.90	2.30	2.00	5.50
20	1.25	3.50	.85	2.20	1.75	5.00
50	1.00	3.00	.80	2.10	1.50	4.50
1	5.00		2.00		6.00	
1	3.00	7.50	1.50	4.00	4.00	10.00

*Effective Jan. 1, 1932, subscription price of ELECTRIC REFRIGERATION NEWS (now issued every week) will be increased to \$3.00 a year.

GROUP SUBSCRIPTION OFFERS: These special rates are for paid-in-advance subscriptions in United States only. Charge orders are billed at the single-subscription rate, regardless of number. Papers will be mailed to individual addresses. Use separate sheet for additional names.

COMBINATION RATES: A new subscription to REFRIGERATED FOOD NEWS may be combined with a renewal or extension of an old subscription to ELECTRIC REFRIGERATION NEWS. It is not necessary for expiration dates to coincide.

BUSINESS NEWS PUBLISHING CO.,
550 Maccabees Building, Detroit, Mich.

Gentlemen:

Renew subscription to Electric Refrigeration News 1 year 3 years
 Enter subscription to Refrigerated Food News 1 year 3 years
 Both of above papers 1 year 3 years

I am enclosing \$..... in form of Check Money Order Cash.

Name

Attention of {
or Care of {

Address

City and State.....

11-4-31

Requests for Information

Readers who can be of assistance in furnishing correct answers to inquiries, or who can supply additional information, are invited to address ELECTRIC REFRIGERATION NEWS, mentioning query number.

Manufacturer of Perfectair

Query No. 557—"Please furnish us with the name of the manufacturer of the Perfectair device for humidity control."

Answer—Floyd S. Graham, William Automatic Preservator, Inc., 88-45 78th St., Woodhaven, N. Y.

Rachet Wrenches

Query No. 558—"What companies manufacture rachet wrenches with a 1/4-in. square opening suitable for operating refrigeration valves with exposed stems?"

Answer—J. H. Williams Co., Buffalo, N. Y., and Bonney Forge & Tool Works, Allentown, Pa.

Coin Devices

Query No. 559—"What companies manufacture coin operated devices for electric refrigerators?"

Answer—Meterice of America Co., Ltd., Pacific National Bldg., Los Angeles, Calif.; Mills Novelty Co., 4100 Fullerton Ave., Chicago, and Studner Brothers, Inc., 245 Fifth Ave., New York.

Refrigeration Sales Figures

Query No. 560—"Can you furnish me information as to the total number of electric refrigerators that are in use today in homes and in commercial establishments?"

Answer—See Jan. 14, 1931, issue for sales during previous 10 years.

Commercial Machines

Query No. 561—"How many commercial machines have been sold each year since 1924?"

Answer—Figures published in Jan. 14, 1931, issue.

Ice Cube Trays

Query No. 562—"What companies manufacture trays for the making of ice cubes in electric refrigerators?"

Answer—Feeders Mfg. Co., Buffalo; Inland Mfg. Co., Dayton, Ohio; Lima Sheet Metal Products Co., Lima, Ohio; Metalite Mfg. Co., 1315 S. Maple Ave., Los Angeles; Morrison Mfg. Co., 2315 Wolfram St., Chicago; Oakes Products Corp., North Chicago, Ill.; United Steel & Wire Co., Battle Creek, Mich.; McCord Radiator & Mfg. Co., 2585 E. Grand Blvd., Detroit, and Hoosier Lamp & Stamping Corp., Evansville, Ind.

Oil Burner Parts

Query No. 563—"What concerns can furnish us with the following parts to

20 ORDERS DAILY AT CLOSE OF CAMPAIGN

BROOKLYN—A whirlwind finish, during which orders poured in at the rate of 20 a day, marked the close of the Great American Servant Refrigeration Campaign of the Brooklyn Union Gas Co.

Although final figures have not been released, 623 Electrolux had been sold to retail purchasers since the campaign opened on Aug. 1. The company's salesmen accounted for 338 of the sales and dealers accounted for 285.

The final week was the best of the entire campaign. Both salesmen and dealers increased their sales efforts with the result that salesmen turned in 56 new orders and the dealers found purchasers for another 62 refrigerators.

Foremost among the achievements of the company's salesmen was the record made by Phillip Ollivier of the Flatbush branch. Salesman Ollivier sold seven Electrolux the last week, bringing up his campaign total to 25, nearly twice the number sold by any other member of the retail sales organization. Jayson M. Brice, of Nassau branch, was next in line with 13 sales. Two men, Lovat Cornwell and Max Tappero, both of Brooklyn branch, were tied for third place with 12 each.

4,300 ATTEND FITCHBURG REFRIGERATION EXHIBIT

FITCHBURG, Mass.—Four thousand three hundred persons attended the Fitchburg style and refrigeration show which was held in the city hall, Oct. 6, 7, and 8.

Four home economists gave daily demonstrations on the preservation of food. They were Miss Grace L. Hallowell, Westinghouse; Miss Elinor Lynch, Frigidaire; Mrs. Josephine H. Pearce, General Electric, and Mrs. Ruth H. Smith, Birdseye.

T. G. Phillips, Westinghouse representative, and J. F. Cain, Frigidaire, also spoke at the exhibition.

Booths were occupied by W. C. Kimball and Son Co., Sears, Roebuck & Co., Hibbard Electric Co., D. A. Boyle, Fitchburg Gas and Electric Light Co., S. M. Nathan, Rand's Radio Shop, Fitchburg Auto Electric Co., and Clover Hill Farms, Inc.

THE CONDENSER

ADVERTISING RATE fifty cents per line (this column only).

SPECIAL RATE if paid in advance—Positions Wanted—fifty cents or less, one insertion \$2.00, additional words four cents each. Three insertions \$5.00, additional words ten cents each. All other classifications—fifty cents or less, one insertion \$3.00, additional words six cents each. Three insertions \$8.00, additional words sixteen cents each.

REPLIES to advertisements with box numbers should be addressed to the box number in care of Electric Refrigeration News, 550 Maccabees Building, Detroit, Mich.

POSITIONS AVAILABLE

WANTED, by large manufacturer of Ammonia and Methyl Chloride refrigerating equipment, experienced man to take charge of development and production of water cooler, comfort coolers, and similar units. Give all details of technical training, experience, references, etc., in first letter. Address Box 384.

POSITIONS WANTED

HIGH-CLASS development and sales engineer owning recently completed development of solderless flinned direct and flooded evaporators, multiple expansion valve, and space cooler data, available for sales, research, or engineering. Above evaporators also applicable other heat transfer applications, liquid coolers, unit heaters. Can show successful record refrigeration sales and engineering. Box 333.

WANTED. Situation with responsible company. Capable of exploiting an idea for a sulphur dioxide compressor of new design with seal always under pressure never vacuum. Eliminates air induction at seal. Also a float valve that won't trap oil. This device has basic patent possibilities. Box 382.

EXPERIENCED electrical refrigeration executive available for new connection where successful past performance will be an asset. Four years' experience in commercial and domestic activities, both wholesale and retail. Thorough knowledge of the industry from every angle. Old enough to maintain balance, young enough to generate enthusiasm throughout the organization. Available for interview now. Box No. 331.

EQUIPMENT FOR SALE

290 GUARANTEED single cylinder compressors at manufacturer's cost price. 946 Hanna Bldg., Cleveland, Ohio.

BUYER'S GUIDE

Manufacturers Specializing in Service to the Refrigeration Industry

SPECIAL ADVERTISING RATE (this column only)—\$12.00 per space.

Minimum contract—13 insertions in consecutive issues.

STOCK PARTS LOWER COSTS

--Speed Up New Model Production

Hoosier Stock Parts save retooling expense, eliminate profitless small operations, stop delays. We ship from stock to meet your production schedules. Send us your specifications for quotation on stock or special designs.

HOOSIER
LAMP & STAMPING CO., EVANSVILLE, IND.

OPPORTUNITY

For outstanding distributors to secure ideal sales companion for Electric Refrigerators -- a profitable volume item.

The Modern Electric Range

ELECTROCHEF

Write for details

ELECTROMASTER, INC. 1803 E. Atwater St., Detroit

SPECIAL APPLICATIONS

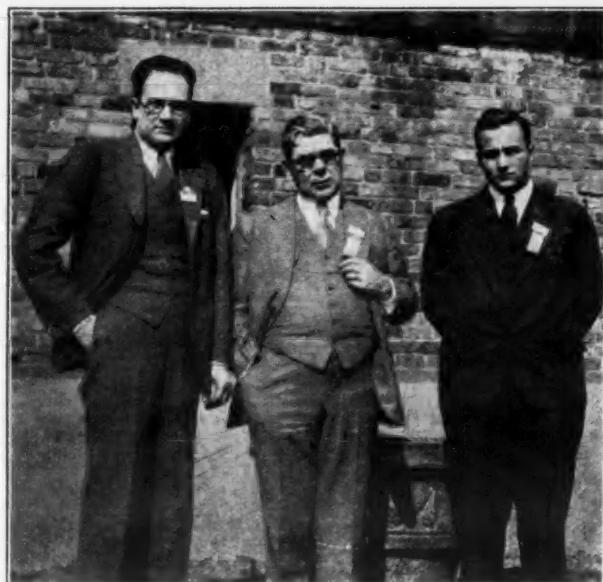
Complete facilities and long experience at your service to build special designs, sizes and shapes of cabinets and coolers. Expert refrigeration engineering applied to your problems. Send sketch and description of your requirements. Blue prints and estimates will be furnished promptly.

Manufacturers of Soda Fountains and Commercial Refrigeration

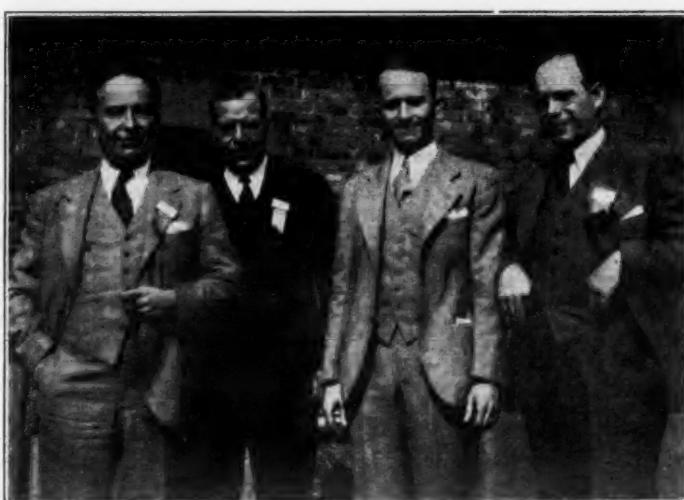
VALERIUS CORP.

JEFFERSON, WIS.

Leonard Distributors Hear 1932 Plans at Convention



District Manager Lee Stratton (left) discusses sales possibilities in the Cincinnati territory with W. L. Bischoff, Sr., and W. L. Bischoff, Jr. (right).

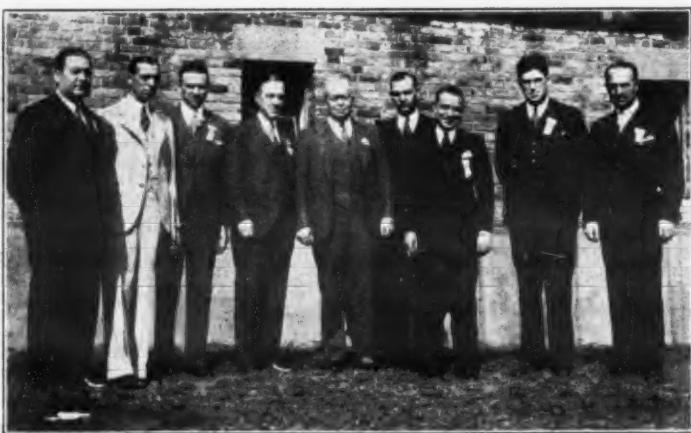


C. V. McArdle, Syracuse, N. Y., R. I. Petrie, Leonard sales manager, B. E. White, assistant sales manager, and Mr. Warner, Syracuse, talk shop during convention rest period.

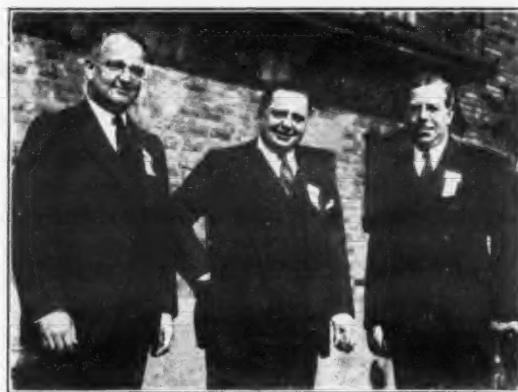


J. R. Bramer, Oklahoma City, William Longmire, and I. E. Cope, Dallas, Tex., district manager, interested themselves in the sales problems of the south.

An Executive Conference



This eastern delegation included (left to right) C. A. D'Elia, Bridgeport, Conn.; H. J. Fank, Albany; Mr. Krone, New York; H. R. Tracy, Providence; J. B. Whittier, district manager, New York City; William Ohman and L. B. Latham, New York; Lee T. Ramsey, Burlington, Vt., and F. R. Milheisen, New York.



Executives convened for a short talk during the noon rest period. Here we have H. W. Burritt, vice president of Kelvinator Corp.; G. W. Mason, president of Kelvinator, and Mr. Petrie.



B. T. Roe, district manager at Philadelphia, assembled his dealers for this picture. Left to right: Mr. Roe; W. D. Stuart, Richmond, W. Va.; J. A. Williams, Pittsburgh; Julius Klein, Philadelphia; Mr. Berry and Mr. Ayer, Mayer & Co., Washington, D. C., and Mr. Brooks, Philadelphia.

Between Sessions



Vice President Burritt between sessions with H. G. Perkins, assistant to the president.

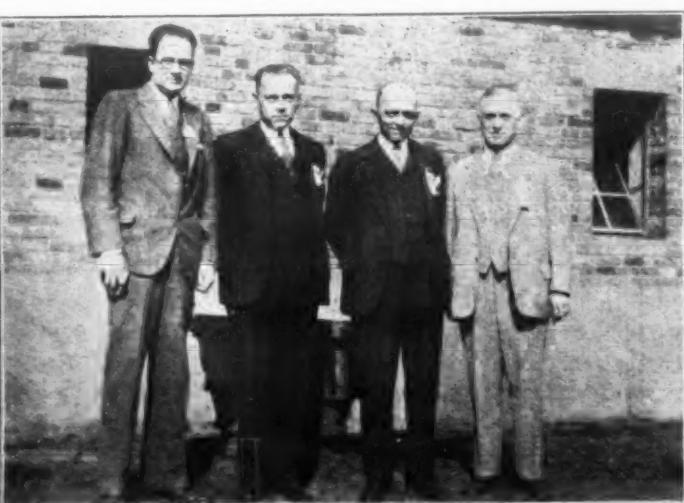


Members of the Brooke, Smith & French agency were present at the meeting. Left to right: Gene Bolich, George Cox, John Caron, Mr. Andrews, and E. L. Trifitt.

Syracuse Distributors



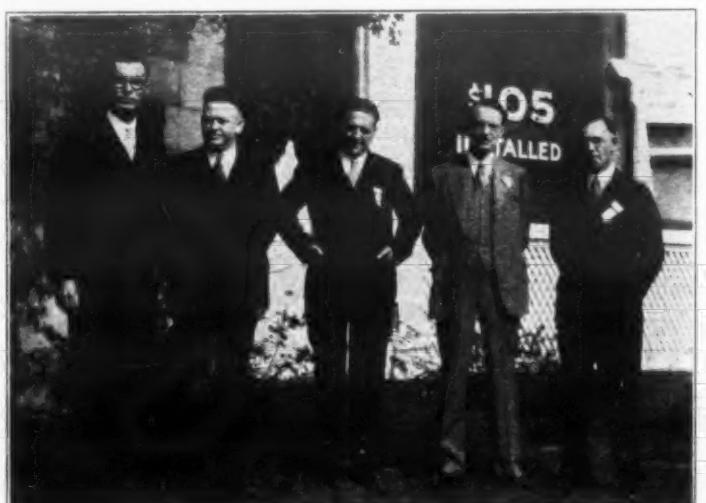
The Syracuse pair, Warner and McArdle, makes preliminary 1932 Leonard sales plans.



Mr. Stratton (left) gathered together his Missouri dealers, W. E. Tiemann and O. H. Tiemann, both of St. Louis, and Mr. Smith, Springfield, Mo.



Again District Manager Stratton crept into the picture, this time with Mr. Evans, Memphis, Tenn., and Mr. Henley, Birmingham, Ala.



Gordon Muir, district manager, Detroit (second from right), is shown with Mr. Schlink, Detroit; O. M. Woods, Ft. Wayne, Ind., and W. B. Muse, Detroit.

ELECTRIC REFRIGERATION NEWS

Registered U. S. Patent Office

The business newspaper of the refrigeration industry

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DETROIT, MICHIGAN, NOVEMBER 4, 1931

Entered as second class matter
Aug. 1, 1927, at Detroit, Mich.TEN CENTS PER COPY
TWO DOLLARS PER YEARPENN SWITCH CO.,
FRIGIDAIRE SUING
ON COLD CONTROLMajestic Dealer Named
In Most Recent
Action

DES MOINES, Iowa—A suit asking for a permanent injunction against Jesse E. Moore, manager of the Majestic Shop, here, was filed last Friday by the Penn Electric Switch Co. and Frigidaire Corp., in the U. S. district court.

The suit is one of a series instigated by Frigidaire and Penn Electric Switch against Des Moines distributors of electric refrigerators, in which they complain of infringement on the use of a cold control with an electric refrigerator as covered by the Blackmore patent 1,658,323, and the Summers patent 1,819,979. Penn Electric Switch Co. is the exclusive licensee.

The Majestic petition further claims infringement on the mechanism which permits temperature selection through an automatic rheostat.

The Des Moines firm of Bair, Freeman & Sinclair, patent attorneys, is acting for the plaintiffs.

An earlier suit on the same subject was filed by Penn Electric Switch and Frigidaire against S. Davidson & Bros., Servel distributors. It is being defended by Cutler-Hammer, Inc., Milwaukee, manufacturer of the Servel control apparatus.

Another suit on the Blackmore patent is directed against Lewis Munn and H. V. Cassady, local Zerozone representatives, and is being defended by the Automatic Reclosing Circuit Breaker Co., Columbus, Ohio.

G. E. WORKERS ACCEPT
SWOPE RELIEF PLAN

SCHENECTADY, N. Y.—By a sweeping majority, the new unemployment relief plan offered to employees of the General Electric Co. has been accepted by them. President Gerard Swope announced Oct. 28 when a tabulation of the votes showed that 89.5 per cent of those employees eligible to vote had cast their ballots and that 97 per cent of them favored adoption of the plan.

The total number of eligibles is slightly more than 39,000. These are employees who are members of the original and basic unemployment pension plan adopted by employee vote Aug. 1, 1930. The number of votes cast thus far for the new plan is approximately 35,000.

Voting will continue until Nov. 1 to permit participation by employees who were absent for one or another reason. The result, however, is now assured as the new plan already has the support of 87 per cent of the total body of eligible employees.

The plan provides for rotation of available work and other means by which hourly-rated and piecework employees on the payroll Nov. 1 may be assured of receiving, during the following six months, not less than the equivalent of one-half of their average full-time weekly earnings up to an average of \$15 per week, and their actual earnings in case the latter amount to more than \$15 per week.

The unemployment emergency fund of the company, to which those employees earning 50 per cent or more of their average full-time earnings (including all office, administrative and executive employees and officials of the company) now contribute one per cent of their earnings, will be augmented Nov. 1 by increasing this contribution to two per cent, the company contributing an equal amount.

The plan has been approved in principle by the board of directors, and in case these provisions prove inadequate, the board will be asked to authorize additional payments to the fund by the company, without additional payments by employees.

E. J. KIMM TO REPRESENT
KEROTEST IN DAYTON

DAYTON—E. J. Kimm, 517 Grafton Ave., here, has been appointed special representative of the Kerotest Mfg. Co., Pittsburgh. Mr. Kimm will handle the sale of Kerotest refrigeration products in and around Dayton.

DuPont Laboratory
Demonstrates
Refrigerants

WILMINGTON, Del.—Refrigeration engineers and municipal officials interested in codes and ordinances relating to the installation of refrigeration equipment witnessed a series of comparative tests of refrigerants at the Jackson Laboratory, Deepwater Point, N. J., on Oct. 28 and 29. These tests were arranged for by Kinetic Chemicals, Inc., and were made under the supervision of Wm. S. Calcott, director of Jackson Laboratory.

A test chamber 10x10x10 ft. in size, with two walls fitted with cellophane-covered frames was built in the open and a tent was erected for the observers. The various refrigerants were discharged into the chamber and observations made of the reactions under a variety of conditions. Samples of the atmosphere were withdrawn at regular intervals for analysis. Some time will be required for the compilation and analysis of the data obtained.

The gases tested included sulphur dioxide, dichloro-difluoromethane (Kinetic No. 12), methyl chloride, dichloromethane (methylene chloride), carbon

(Concluded on Page 3, Column 1)

McCRAY KILN-DRIES
WOOD FOR CABINETS

By John T. Schaefer

KENDALLVILLE, Ind.—All lumber used by the McCray Refrigerator Co. in this small town of northern Indiana is dried both in air and in steam-heated kilns before being fabricated into commercial refrigerators.

Lumber is unloaded from the McCray railroad siding directly into the covered storage sheds where it awaits the demands of production schedules before being loaded onto rail trucks and carried over to the dry-kilns.

In the dry-kilns, steam from McCray's power plant heats and dries the timber until its moisture content is reduced to the neighborhood of three to five per cent. When first introduced into the kiln the moisture may run as high as 50 or 60 per cent, the kiln tender explains.

Exhaust steam from the power plant serves during the heating season; in summer live steam is used, for the drying process must continue 24 hours a day all year around. Using live steam, the kiln dries 1 1/4-in. lumber in from 15 to 20 days. On exhaust steam it takes much longer.

When dried and ready for the shop, the lumber is loaded on trucks again, but this time the rails lead to a planer in Mill Number One. A hoist lifts the stock to the working level, and the

(Concluded on Page 2, Column 1)

WESTINGHOUSE TO
MAKE CABINETS
IN MANSFIELD, O.Production Schedules
Are Doubled
For 1932

EAST PITTSBURGH, Pa.—Beginning Jan. 1, 1932, refrigerator cabinets will be manufactured in the Mansfield, Ohio, works of the Westinghouse Electric & Mfg. Co., it was announced last week.

"Westinghouse refrigerator production will be doubled next year," C. D. Taylor, refrigeration sales manager, stated.

C. E. Allen, commercial vice president of the company, gave several reasons why Mansfield was selected as the center of this activity.

"Of considerable importance is the fact that Mansfield is close to the center of distribution and has good shipping facilities. Labor conditions are stable and a good supply of skilled labor is available. Living conditions are above the average," Mr. Allen said.

E. M. Olin, works manager, stated that a large part of the cabinets for all Westinghouse requirements will be made at Mansfield next year. This will mean speeding up production of the entire year of 1932.

"We shall have work for approximately 500 additional employees," said Mr. Olin.

AMERICAN RADIATOR
MAKING NEW VALVE

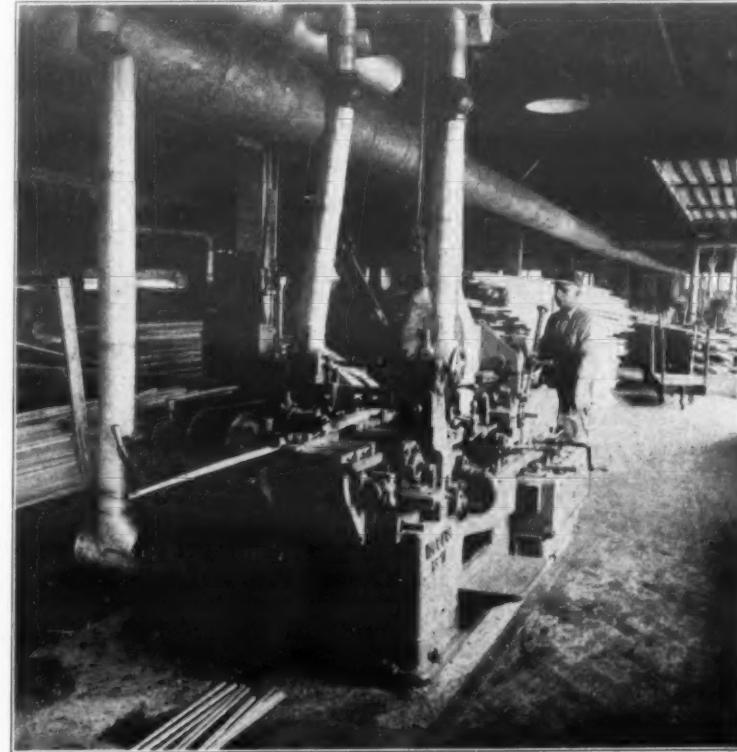
DETROIT—Engineers of the Detroit Lubricator Co., a division of the American Radiator Co. and Standard Sanitary Corp., have designed a new expansion valve which will be known as the No. 672 American Automatic Expansion Valve.

Field tests on the valve were started in the spring of 1928, when 50 experimental valves were installed in various parts of the country. In 1930, 50 more valves were produced with a slight change in design to provide for hermetically sealing the bellows chamber and adjusting screw. The 100 valves have been in constant operation since their introduction.

This year approximately 10,000 valves have been built on the same design and are going into the electric refrigerators of six manufacturers as standard equipment.

(Concluded on Page 6, Column 4)

Modern Cabinet Making



This new molding machine was recently installed in the Mill Room of the McCray Refrigerator Co., Kendallville, Ind.

Frigidaire, G. E. Design
New Ice Cream Cabinets2-Cylinder Compressors,
Cold Holdover Used
In Frigidaire
Machines

DAYTON—Technical refinements of thermostatic temperature control, a congealing fluid for cold holdover, and the application of twin-cylinder compressors, mark the new line of ice cream cabinets just introduced by Frigidaire Corp. at the Dairy Industries convention last week in Atlantic City, N. J. Lower prices were also characteristic of the new models.

All the new Frigidaire cabinets have side panels finished in black porcelain on steel, according to B. V. Vandoren, commercial sales manager.

"For some time Frigidaire portable ice cream cabinets have been equipped with universal sleeves. In the 1932 line this feature is found on all models. As a result the company has been able to decrease the number of cabinets in the line from 23 to 14," Mr. Vandoren says. "The new rectangular sleeves in the direct expansion models will accommodate either 9 1/2 or 10 1/2-in. cans and can be used for either bulk or canage storage."

The new cabinets are equipped with a thermostatic temperature control, so that the mechanism is controlled directly by temperature requirements of the cabinet, Frigidaire engineers point out. This is the same type of control that has been used for some time in the company's electric water coolers.

On smaller cabinets and many of the larger ones, improvements include direct expansion type cooling coils submerged in a special congealing fluid to reduce weight, increase holdover and give a quicker pull down, Frigidaire engineers claim. This congealing fluid is non-corrosive and odorless, and is

(Concluded on Page 6, Column 4)

LEONARD ELECTRICS
FEATURE LEN-A-DOOR

DETROIT—The most distinguished feature of the seven new Leonard electric refrigerators announced in last week's issue of ELECTRIC REFRIGERATION News is the new Len-A-Door by which the user can open the door with both hands full by foot pressure on the pedestal below the refrigerator.

Other features are the all-porcelain finish on the evaporator, the egg basket for the food compartment, and the use of a high side float to control the SO_2 in the evaporator. Direct expansion is used.

An automatic temperature control is used, with an unloading device which takes the machine off the power should it pull too much power. The circuit breaker is closed manually by the defrosting switch, and will throw out again immediately if the trouble isn't corrected.

All cabinets are grooved for an interior electric light, which is furnished as standard equipment on all porcelain models. The light burns only when the door is opened. A chromium finished metal door separates the ice cube trays from the food space.

Hardwares are chromed plated, and of new design; door handles are of

(Concluded on Page 4, Column 2)

CARBONDALE'S EXCELSIOR
DIVISION MOVES

SOUTH NORWALK, Conn.—The Excelsior division of the Carbondale Machine Co., which manufactures electric refrigerators, has closed its factory here and is moving back to the main plant at Carbondale, Pa. W. H. Magee, manager of the local division, explained that the move was for economical purposes.

Oil Feature

A COMPLETE treatise on the action which takes place between sulphur dioxide and compressor oils is presented by C. W. Johnston, manager of the Virginia Smelting Co., on page 5 of this issue.

General Electric Offers
A Sealed Compressor
To Serve Remote
Installations

CLEVELAND—Coincident with General Electric's statement that its sealed-in-steel condensing unit is now available for remote installations, was the announcement last week of a new line of ice cream cabinets designed for use with the remote condensing units. Both ice cream cabinets and condensing units are covered by a three-year guarantee.

The new high sides are housed in steel cabinets 30 in. high, and 30 in. deep. The 1/2-hp. model D-54 size is 15 in. wide, while the 1/4-hp. D-44 machine is enclosed in a cabinet 13 1/2 in. wide.

Few mechanical details have been announced about the new condensing units, but it is known that they employ forced feed lubrication and forced air condenser cooling. The compressor mechanism is sealed in steel, as are all General Electric condensing units. Cabinets enclosing the machine are of double exterior walls of black porcelain on steel.

The condensing unit cabinets are of the same height and depth as the ice cream cabinets so that if desired they can be placed together. When this is done, a monel metal cover is provided for the compressor cabinet to make it match the ice cream cabinets.

Eight ice cream cabinets comprise the new line. They are the two-hole double row, the four-hole single row, the four-hole double row, the six-hole single row, the six-hole double row, the eight-hole double row, the ten-hole double row, and the 12-hole double row.

One-third hp. compressors are used with ice cream cabinets up through the six-hole sizes, while the 1/4-hp. unit is recommended for the larger sizes.

Double row ice cream cabinets are 30 in. wide, while the single row outfits are 21 in. wide. All are 30 in. high. Lengths vary from 21 in. for the two hole to 78 1/2 in. for the 12 hole.

The ice cream cabinets are constructed in angle iron frames, with black porcelain on steel removable exterior panels. The insulation is enclosed by the exterior panels and a secondary interior galvanized iron wall which seals the insulation from moisture on all sides and bottom. Tinned copper

(Concluded on Page 7, Column 2)

HEATING MAN GIVES NEEDS
OF HOME AIR CONDITIONER

MILWAUKEE—Household air conditioning systems employing refrigeration await the development of refrigerating equipment with certain definite characteristics, in the opinion of Edwin A. Jones, chief engineer for the L. J. Mueller Furnace Co. which recently announced a domestic "air conditioning" system which heats, washes, and humidifies air for the home.

The refrigerating equipment should have a high side operating at less than 100 lbs. pressure, he avers, while the low side should run at atmospheric pressure or less. He believes direct expansion is most suitable, with an evaporator temperature high enough to avoid freezing difficulties.

In order to be able to cool by air, he favors the use of a condenser working at about 180° F. The cooling equipment should have a capacity of approximately five tons, he says, and should have a non-toxic, non-inflammable refrigerant.

AIR-DRIED LUMBER USED
IN SCHAEFER TRUCKS

CLEVELAND—Refrigerated truck bodies furnished by the Gustav Schaefer Co. of this city are built with lumber that has been air-dried as long as five years in order to prevent warping after the bodies go into service, according to Ernest Schaefer, secretary of the firm.

Trucks have been constructed for use in delivering ice cream, meat, and vegetables, he reports, usually using solid carbon dioxide as the refrigerant.

McCRAY'S SAWDUST DUCTED TO BOILERS

(Concluded from Page 1, Column 2)
planer's knives start to take off their share of roughness.

McCrays mills are marked by absence of belts and overhead pulleys. All milling machines are separately motored, some having several motors. A system of ducts sucks the sawdust from cutting edges of each machine, and blows it through ducts over to the power plant where it is burned in the boilers.

From Mill Number One, the lumber goes upstairs to Mill Number Two where the wood begins to assume the shapes for which it is intended. Oak is shaped into pieces for exteriors of refrigerators, while spruce and maple are prepared for interiors.

Among the wood-working machines up here are planers, tenoning machines, a continuous feed glue jointer, morticing machines, "stickers," several automatic rip-saws and jointers, a nailing machine which drives 42 a minute, and a continuous feed sander which finishes a piece of wood as wide as 85 in. (said to be the largest sander in the state).

Large walk-in coolers being constructed in the cooler department move along the length of the room in practically straight-line production, with workmen each performing their individual operations on each.

Coolers are built up complete in the McCray factory to insure the parts fitting properly, and then (with the exception of one model) taken apart and shipped "knocked-down." The exception to the "knocked-down" shipment practice is a small cooler built for mechanical refrigeration. All coolers designed for mechanical refrigeration have smaller cooling chambers than the ice models.

In shipping a cooler, every part is numbered so that the installation man can assemble the refrigerator easily.

In the plating department lag bolts, angle iron, screws, and other interior



View in the cabinet room of the McCray Refrigerator Co., Kendallville, Ind., showing workmen (at left) building a grocery refrigerator.

parts are galvanized in McCray's galvanizing tanks, while other nearby tanks serve for nickel plating hinges, drains, and special parts.

Monel metal for exterior finishing is cut to shape in large power shears, and shaped in punch presses.

In the finishing room, exterior wood is first oiled, then filled, and finally varnished. Three coats of varnish are applied to the cabinets—all being sprayed on in ventilated booths. The first two are thin coats, the last coat being

as thick as the first two combined.

An Idea Contest is conducted by the management to encourage employees to make helpful suggestions about efficiency and working conditions in the plant, and regular awards are made to workers who submit practical plans. The committee in charge of selecting the best ideas includes: W. D. Mains, factory superintendent; J. W. Hart, secretary; R. E. Davis, treasurer; G. J. Hopkins, chief engineer, and V. I. Stoeckley, purchasing agent.

rustless as copper—strong as steel

EVERDUR

now available in

THIN-SHEET FORM



Other Anaconda Products used by the Electric Refrigeration Industry include:

Tinned copper for ice trays, grids, containers, and compartment linings for commercial units.

Free-turning Brass Rods. Brass, Tobin Bronze* and Everdur* die pressed parts and forgings for valves and fittings.

Ambrac*, a corrosion-resistant white metal of high strength and good workability, for screws, bolts, racks and metal trim.

Where strong, non-rusting screws are needed and white metal is not essential, they can be obtained in Everdur* from leading fabricators.

*Trade-mark Reg. U. S. Pat. Off.

COLD-ROLLED SHEET EVERDUR is now available in gauges as thin as .003" . . . ductile enough to bend through 180° and approximately 130,000 pounds per square inch in tensile strength.

In any form, Everdur Metal, a copper-silicon-manganese alloy, combines the strength of steel with unusual resistance to many corrodin agents, especially the commonly used refrigerants.

And it has excellent working properties, either hot or cold . . . can be welded like steel by any method, brazed, silver soldered or soft soldered. Everdur fits smoothly into production operations without requiring special processes.

Exclusively an Anaconda product, Everdur is manufactured by The American Brass Company in the form of sheets, strips, plates, wire, rods, tubes and die-pressed parts. Everdur bolts, nuts, screws, nails, etc., are available from leading manufacturers.

Literature giving detailed information on the properties of Everdur will be furnished on request.

THE AMERICAN BRASS COMPANY

General Offices: Waterbury, Connecticut
Offices and Agencies in Principal Cities

ANACONDA COPPER & BRASS

McCray Cabinets in Production

REPOGLE PETITIONS COURT FOR PATENT

WASHINGTON, D. C.—John R. Repogle of Copeland Products, Inc., has appealed his application No. 214,559 for an automatic refrigerator control to the U. S. Court of Customs and Patent Appeals.

The valve element of the control system is the feature which Repogle stresses in his appeal, contending that the use of a snap action valve distinguishes the system from the pressure valve patented by Arthur H. Eddy of Windsor, Conn., May 30, 1916.

It is intended to use the system in a refrigerating plant containing several compartments in which different temperatures are to be maintained.

The commissioner has held that the substitution of a snap action valve for one actuated by pressure is not such a change or improvement as to warrant issuance of a patent. Other features, it is claimed by the patent office, are of the variety in common usage and do not warrant consideration on patentability.

SPREEN GOES TO COURT WITH PATENT REQUEST

WASHINGTON, D. C.—After contesting for six years in the patent office that his claims for invention of an electric refrigerator are patentable, Charles C. Spreen of Detroit has appealed to the U. S. Court of Customs and Patent Appeals.

Application for the patent and drawings detailing the appointments of the refrigerator were placed on file here Jan. 2, 1925.

The insulating methods which he claimed to be new were said by the federal bureau to have been covered in patent number 652,408 issued on June 26, 1900, to H. J. Sullivan of Milwaukee, Wis.; the method of installing the compressor, also claimed as original, was rejected and attention called to the patent issued to Richard Whitaker of New Brunswick, N. J., Mar. 28, 1904; the self-contained feature was said to be not patentable in view of coverage granted June 28, 1910, to R. W. Emerson and F. Bishop of South Bend, Ind., in patent 795,015.

American Radiator Designs New Valve

(Concluded from Page 1, Column 3)
ment, according to I. J. Knudson, in charge of refrigeration sales.

The new valve has only one moving part, an assembly of bellows, yoke and needle. A cross-sectional view is reproduced below.

The flared nut making the inlet connection takes a $\frac{1}{4}$ -in. copper tube, and at the same time holds in place the strainer plug by a novel type of connection peculiar to the new valve. The strainer has more area than previous types, and can be removed by unscrewing the flared nut.

The bellows is enclosed in an air-tight cap which prevents it from breathing moisture and eliminates any tendency for the bellows to freeze up. The spring is of novel design which permits adjustment to vacuum or pressure by the use of a single spring. This arrangement provides for sensitive operation without lost motion. The spring is never in contact with the refrigerant.

All parts of the valve are assembled with a special acid-resisting solder. Pressure adjustments are made by means of the adjusting screw which is surrounded by a moisture-tight stuffing box as previously mentioned.

No gasketed joints are used except for the strainer connection which is of novel design, as shown in the cross-sectional view.

The new valve is claimed to be ex-

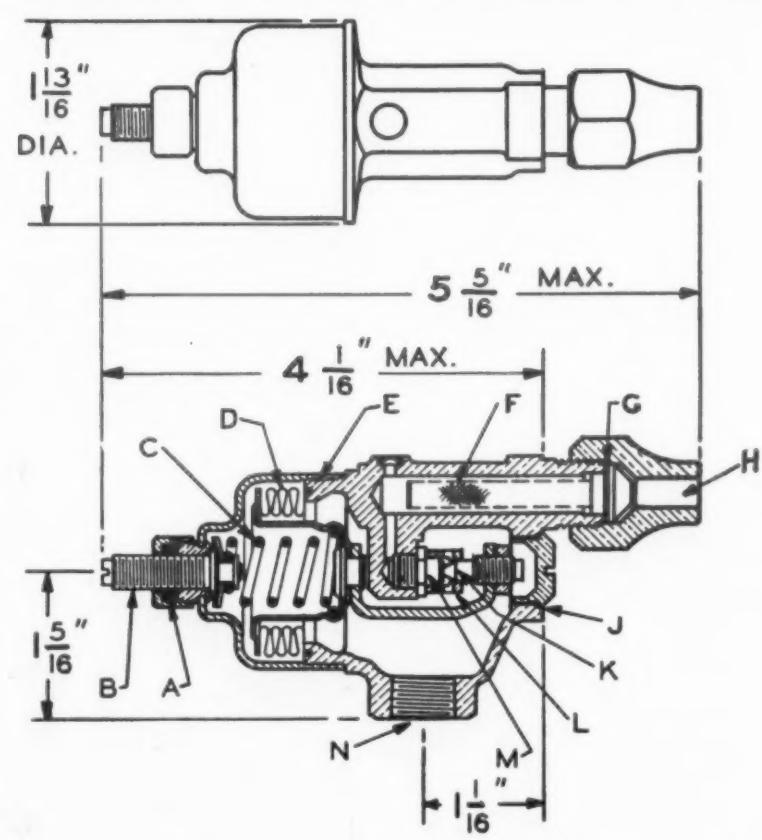
MULLINS MANUFACTURING CO. REPORTS PROFIT

SALEM, Ohio—Mullins Mfg. Corp. reported a net profit of \$17,349 for the quarter ending Sept. 30, as against a net loss of \$25,428 for the same quarter of 1930.

tremely sensitive and to maintain a constant operating pressure. It is compact, and adaptable to the domestic models as well as to methyl chloride machines as large as three tons of refrigeration, laboratory tests show.

The new valve will be supplied with various outlet connections the same as the other valves this company has furnished in the past.

Simplified American Expansion Valve



Cross-section of the new automatic expansion valve just announced by the Detroit Lubricator Co., shows the following parts: A—Packing around adjusting screw. B—Adjusting screw. C—Adjusting spring. D—Bellows. E—Moisture tight joint. F—Strainer. G—Copper gasket. H—Inlet connection. J—Solder sealed plug. K—Stainless steel needle. L—Needle guide. M—Stainless steel seat. N—Outlet connection.

GALAXY OF ENGINEERS ATTENDS GAS TESTS

(Concluded from Page 1, Column 2)
tetrachloride, carbon dioxide, ammonia, propane, and isobutane.

Those present were:

C. C. Ahium, assistant director, Jackson Laboratory, E. I. duPont de Nemours & Co., Wilmington, Dela.

C. M. Ashley, director of engineering, Carrier Research Corp., 750 Frelinghusen Ave., Newark, N. J.

Ernest E. Benger, assistant director, Central Technical Laboratory, E. I. duPont de Nemours & Co., Wilmington, Dela.

Anthony F. Benning, chemist, Jackson Laboratory, E. I. duPont de Nemours & Co., Wilmington, Dela.

C. L. Burdick, assistant chemical director, ammonia department, E. I. duPont de Nemours & Co., Wilmington, Dela.

W. S. Calcott, director, Jackson Laboratory, E. I. duPont de Nemours & Co., Wilmington, Dela.

W. H. Carrier, chairman board, Carrier Corp., Newark, N. J.

F. M. Cockrell, publisher, Electric Refrigeration News, Detroit, Mich.

Thomas Coyle, service engineer, the Roessler & Hasslacher Chemical Co., Niagara Falls, N. Y.

C. Dantsizen, works chemist, General Electric Co., Schenectady, N. Y.

W. E. Deuel, physician, Dye Works Hospital, E. I. duPont de Nemours & Co., Wilmington, Dela.

H. C. Dicus, research chemist, ammonia division, E. I. duPont de Nemours & Co., Wilmington, Dela.

Dan Duval, technician, Kettering Laboratory, Cincinnati, Ohio.

Harry D. Edwards, consulting engineer, Union Carbide & Carbon Corp., 30 E. 42nd St., New York City, N. Y.

F. T. Francis, district manager, General Refrigeration Co., Beloit, Wis.

Gerald Gearon, supervising mechanical engineer, City of Chicago, 601 City Hall, Chicago, Ill.

R. E. Gibbs, chief chemist, York Ice Machinery Corp., York, Pa.

Arnold H. Goetz, vice president, Brunswick-Kroeschell Co., 4221 Diversey Ave., Chicago, Ill.

Wm. R. Hainsworth, director Electrolux-Servel Laboratory, Servel, Inc., 408 East 11th St., New York City, N. Y.

Albert L. Henne, consulting chemist, Frigidaire Corp., Dayton, Ohio.

V. A. Hetzel, supervisor, technical division, installation and service department, Frigidaire Corp., Dayton, Ohio.

W. H. Hickin, attorney at law, 17 E. 42nd St., New York City, N. Y.

Wm. Higham, assistant engineer, Universal Cooler Corp., Detroit, Mich.

H. E. Howe, editor, Industrial & Engineering Chemistry, 706 Mills Building, Washington, D. C.

Carlos J. Jolly, attorney, General Motors Corp., Detroit, Mich.

Walter Jones, vice president, Brunswick-Kroeschell Co., New Brunswick, N. J.

Robert A. Kehoe, associate professor, Frick Co., Waynesboro, Pa.

physiology, University of Cincinnati, College of Medicine, Eden Ave., Cincinnati, Ohio.

Harry Kohl, chief inspector, City of Chicago, 601 City Hall, Chicago, Ill.

Dr. J. Leake, Surgeon General's Office, Washington, D. C.

Thomas A. Larkin, deputy chief, Bureau of Fire Prevention, New York City, N. Y.

Herbert A. Lubs, associate director, Jackson Laboratory, E. I. duPont de Nemours & Co., Wilmington, Dela.

A. R. McGonegal, inspector of plumbing (in charge of refrigeration regulations) District of Columbia Government, 114 District Building, Washington, D. C.

R. C. McHarness, chemist, Jackson Laboratory, E. I. duPont de Nemours & Co., Wilmington, Dela.

C. K. Michaels, engineering department, Bureau of Fire Prevention of New York, New York City, N. Y.

Thomas Midgley, Jr., vice president, Kinetic Chemicals, Inc.

G. H. Miller, assistant manager, Safety and Fire Protection Division, E. I. duPont de Nemours & Co., Wilmington, Dela.

Howard Miller, head of works laboratory, General Electric Co., Fort Wayne, Ind.

H. L. Miner, manager, Safety and Fire Protection Division, E. I. duPont de Nemours & Co., Wilmington, Dela.

E. S. Morton, M. D., chief, Division of Industrial and Adult Hygiene, Department of Health, New York City, N. Y.

Glenn Muffly, consulting engineer, Cope-land Products, Inc., National Electric Manufacturers Association, 420 Lexington Ave., New York City, N. Y.

H. E. Newell, engineer, National Board of Fire Underwriters, 85 John St., New York City, N. Y.

Fred Nolde, secretary and treasurer, Refrigerating Machinery Association, Park Building, 23 S. 52nd St., Philadelphia, Pa.

A. H. Nuckolls, chemical engineer, Underwriters Laboratories, Inc., Chicago, Ill.

C. D. Forch, vice president, Kinetic Chemicals, Inc., Wilmington, Dela.

W. W. Rhodes, sales manager, Kinetic Chemicals, Inc., Wilmington, Dela.

E. G. Robinson, president, Kinetic Chemicals, Inc., Wilmington, Dela.

A. K. Scribner, assistant manager, Virginia Smelting Co., West Norfolk, Va.

Hugh Simmers, service manager, Frigidaire Sales Corp., 386 Gerard Ave., New York City, N. Y.

R. E. Smithson, special representative, Frigidaire Corp., Dayton, Ohio.

Frederick Thamann, research associate in chemistry, University of Cincinnati, College of Medicine, Cincinnati, Ohio.

R. J. Thompson, engineer, Kinetic Chemicals, Inc., Wilmington, Dela.

B. E. Tiffay, chief chemist, Kelvinator Corp., Plymouth Rd., Detroit, Mich.

P. V. Tilden, assistant manager, Safety and Fire Protection Department, E. I. duPont de Nemours & Co., Wilmington, Dela.

W. S. Walker, assistant engineer of utilization, Consolidated Gas Co. of N. Y., New York City, N. Y.

W. B. White, superintendent, New York Board of Fire Underwriters, 85 John St., New York City, N. Y.

E. T. Williams, consulting engineer, Servel, Inc., 51 E. 42nd St., New York City, N. Y.

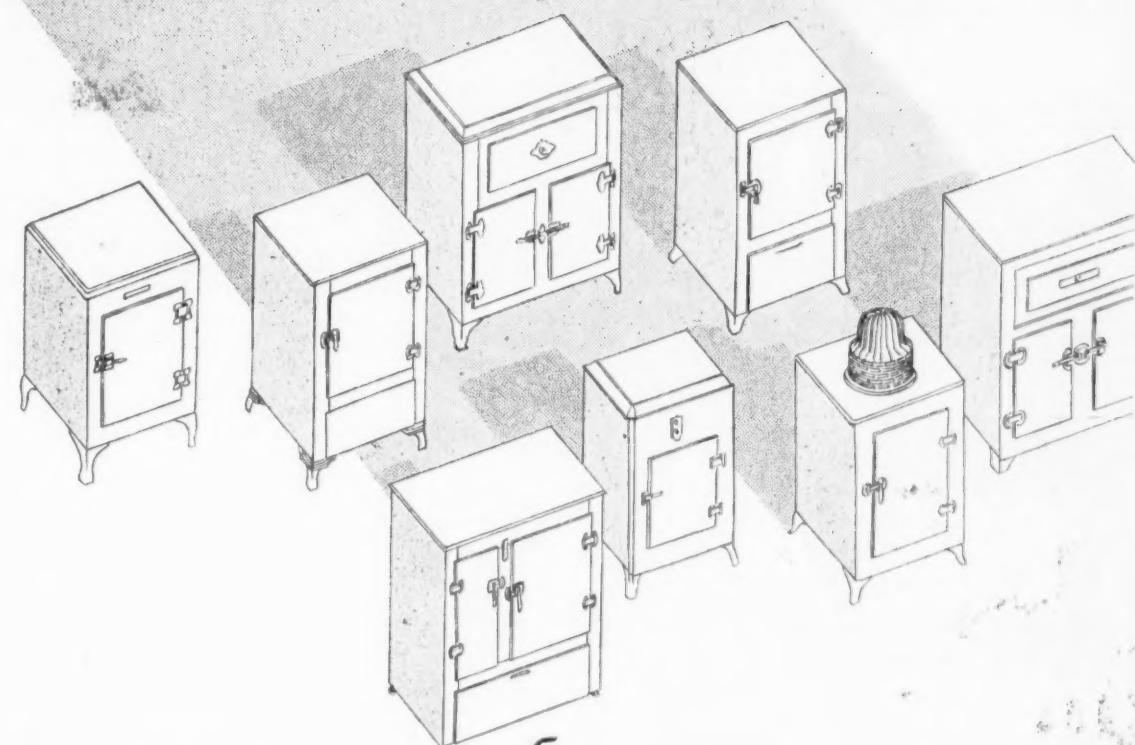
Harry Williams, commercial engineer, Frigidaire Corp., Dayton, Ohio.

Freemon Wilson, consulting engineer, 50 Church St., New York City, N. Y.

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Frank R. Zumbo, refrigeration engineer, Frick Co., Waynesboro, Pa.

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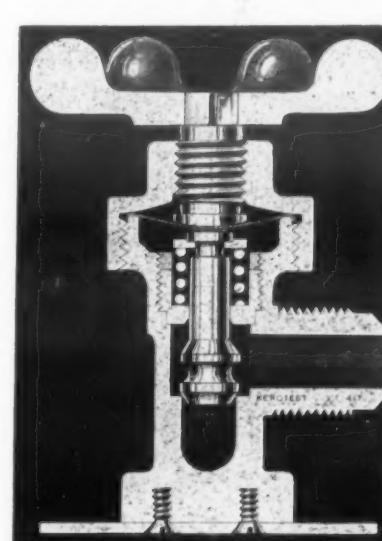
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For the first time, this Directory will be published in handy book form. Complete listing of manufacturers three ways (alphabetically, geographically and classified by products), directory of trade names, important buying information and statistical data will make the Directory the buyers' handbook of the industry—always at hand on the desks of buyers everywhere.

The Directory offers the ideal means of reaching more than 10,000 refrigeration executives, engineers, purchasing agents, salesmen, distributors and dealers.

You will not want to miss this opportunity to tell how your products can effect economy, improve efficiency and make for bigger profits.

Forms close December 15. Write today
for reservation blanks.

BUSINESS NEWS PUBLISHING CO.

550 Maccabees Bldg.

Detroit, Mich.

This advertisement (4 1/2 x 7 1/2 inches) is the exact size of a full-page advertisement in the DIRECTORY. It costs only \$100. There is no better investment in a single advertisement.

LOUIS RUTHENBURG TELLS CAR DESIGN POSSIBILITIES

DETROIT—Automobiles that are just the opposite in design to those of today, with the power plant in the rear instead of in the front where heat and fumes discomfort the passengers, cars that are designed so as to give from 15 to 20 per cent greater speed due to lessened wind resistance instead of enlarged power plants, bodies without mudguards and running boards, were visioned by Louis Ruthenburg, president of Copeland Products, Inc., Mt. Clemens, Mich., in an address to the Tenth National Production Meeting of the Society of Automotive Engineers at the Book Cadillac Hotel, here, recently.

"Every clear thinking production executive will look forward with a most receptive attitude toward sales stimulating innovations," said Mr. Ruthenburg. "The new 1932 models certainly appear to approach dangerously close to perfection, but it is not unlikely that in 1942 we shall realize that while we were thinking so largely in terms of 'gadgets' we were building our automobiles 'wrong end to.'

"Why do we sweat and strain to gain that last five miles per hour at the expense of bigger engines and added cylinders when a 'tear-drop' body might add 15 or 20 per cent to top speed by merely eliminating that terrific vacuum behind the body?" he queried.

"Is it not possible," Mr. Ruthenburg asked, "that our bosses—the American car buying public—will decree that they want true stream line design with the vibration and heat fumes of the engine relegated to the rear of the car? Perhaps they will grow tired of carting about steel chassis frames—relics of open roadster days. These peculiar appendages now called mud-guards and running boards may find their way into the discard. If such things as these should happen, how will the 1932 models look in 1942?"

DETAILS GIVEN OF NEW LEONARD ELECTRIC LINE

(Concluded from Page 1, Column 4) ebony finish. The semi-concealed hinges will support 400 lbs., Leonard engineers claim.

Insulation is 2½ in. thick, hot-asphalt

sealed in steel and wood cabinets. The food compartment lining is of one steel piece, the interiors being white porcelain.

In the following table, all models with

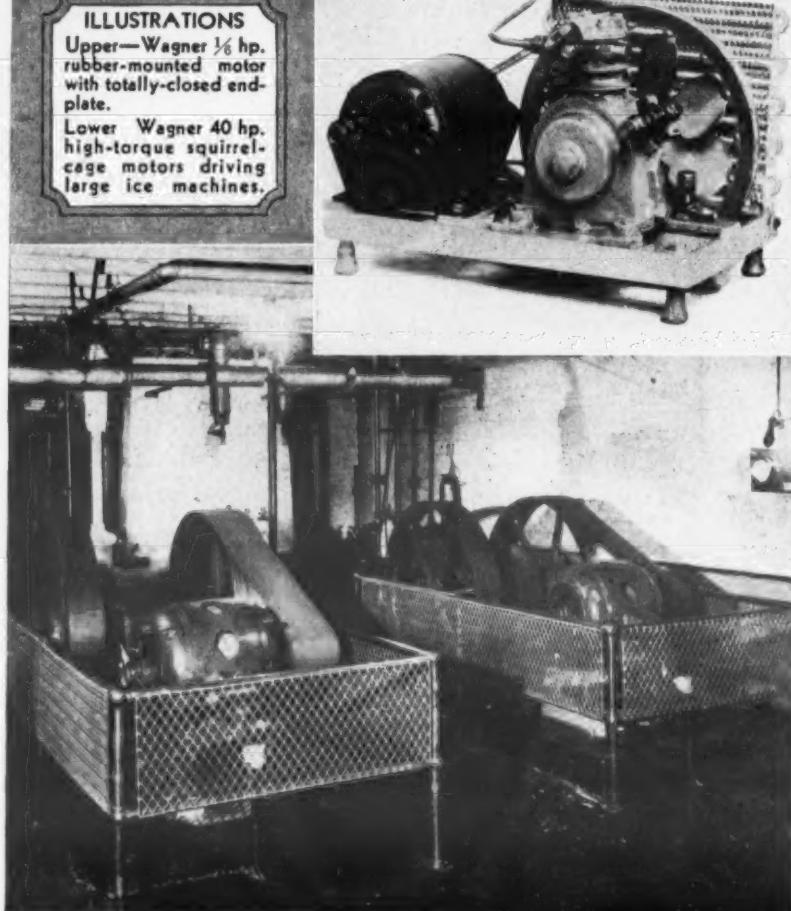
Specifications of New Leonard Electrics

Model No.	Food Storage Capacity Cu. Ft.	Shelf Area Sq. Ft.	No. of Ice Cubes	Motor Size H.P.	Ice Melting Effect		Height Inches	Depth Inches	Width Inches
					Lbs. H.R.	ASRE Method			
AS-450	4.46	9.34	63	1/10	3.9	49½	23½	24	
L-400	4.00	8.21	42	1/10	3.9	49½	24½	26½	
L-450	4.46	9.34	63	1/10	3.9	52½	24½	26½	
L-550	5.57	11.70	63	1/6	4.7	53½	26½	28½	
L-650	6.65	13.73	84	1/6	4.7	54½	26½	31½	
L-750	7.52	16.98	108	1/5	6.8	58½	26½	31½	
PL-550	5.57	11.70	63	1/6	4.7	53½	26½	28½	
PL-750	7.52	16.98	108	1/5	6.8	58½	26½	31½	

What constitutes a good refrigerator? The user expects good design, good construction—PLUS a motor which gives trouble-free, uninterrupted service. >>> A refrigerator must stay on the job if it is to remain profitable to all concerned: manufacturer, dealer and user. It must be well built—and it must be well motored! >>> The rapid growth of electric refrigeration is largely the result of the manufacturers' realization that no refrigerator is better than the motor which operates it. That refrigerator manufacturers appreciate the importance of the motor is

Plus motors

ILLUSTRATIONS
Upper—Wagner ½ hp. rubber-mounted motor with totally-closed end-plate.
Lower—Wagner 40 hp. high-torque squirrel-cage motors driving large ice machines.



reflected in the wide preference and adoption of WAGNER motors. >>> Wagner motors are the product of forty years of experience in motor building and fifteen years of close co-operation with manufacturers of domestic and industrial refrigerators. They are sufficiently varied electrically and mechanically to meet the requirements of different types and sizes of refrigerators. >>> Whatever type your refrigerator may be, there is a Wagner motor ideally suited for operating it to the complete satisfaction of your customers. >>> >>> >>>

Wagner
Electric Corporation

6400 Plymouth Ave., St. Louis, U. S. A.
Motors Transformers Fans
Lockheed Hydraulic Brakes

S531-7YA

Extensive Service Operation



Production methods are employed in the service department of Commonwealth Edison Co., Chicago

CONDITIONED AIR MAY CHANGE OUR HABITS

POINTING out that the more widespread use of air conditioning will cause such radical changes in habits and life of people that the use of some products will decline while others will become more popular, W. B. Spooner, writing in the September issue of *Advertising & Selling*, advises advertisers to look for its effects on the sale of their products within the next 10 years.

"Without getting into technicalities, air conditioning is a year 'round proposition, whose purpose is the control of indoor weather for comfort and health. In the winter, it not only warms a room or a building, but it also adds moisture to the air, without which the indoor atmosphere would be drier than that of the Sahara," he says.

In the summer, you may think that it makes you comfortable because it cools the air—but the important job of taking excess moisture out of the air also contributes to the trick, he points out.

Wide Service

"It will be in service in every up-to-date bank, hotel, hospital, theatre, department store, office building, retail store—yes, and home," he predicts.

"What will air conditioning do to your sales plans? It might be well to give the subject a bit of thought.

"The Jones' home is air conditioned. It's a hot, muggy August night in 1940. Does anyone mop a fevered brow and desperately sigh, 'Let's drive around in the car for a while. It's too hot to stay here!' No one does. To go for a ride is relief to us now, but it will be torture then.

"What do you sell? Gasoline? Watch for dropping sales curves in the summer of the air conditioned era! Books—magazines? There'll be more reading in the comfort of air conditioned homes—day and night. Candy? There's every chance that comfortable people will want more candy—and maybe different candy from what is now bought in summer. What do you sell? Think it over.

Electric Fans May Go

"Many a product designed to alleviate the discomforts of summer heat will suffer," he believes. "Many products will gain. Electric fans! As useless then as they are now to the mythical Eskimo," Mr. Spooner declares.

"Soft drinks? Well, prohibition aside, the summer consumption curve is found to be affected by air conditioning. New drinks perhaps? New slogans—new sales appeals—new advertising? Certainly new conditions to face.

"How about Mr. Jones' appetite?" he queries. "Won't he want a heavier meal in comfortable conditioned air than he did back in 1931? (Note please that Mr. Jones' office—his store—his bank, and so forth will also be conditioned in 1940.) It seems logical to assume that he will. What price summer salads? Not discarded, of course—but certainly a reduced consumption of canned fruits, salad oils, fresh vegetables. And a corresponding increase in consumption of the ingredients that go to make up heavier, heartier meals.

Stores, Offices, Hotels

"These homes will be conditioned. That means power or fuel. The chances are that both gas and electric light companies will gain a tremendous addition to their summer load—just the time they need it for most profitable operation.

"But let us leave the home and go into the city. Mr. Jones works in an office building. It is conditioned, of course. Most of the things that apply to him at home apply here. No electric fans. Not so much time wasted on discussing the hot weather, in getting drinks of ice water, in taking off and putting on coats. Nor will Mr. Jones have that yearning for a frosted chocolate that keeps the soda fountains so busy today," he claims.

If he has to do a bit of shopping for Mrs. Jones he will find any store he goes to as comfortable as his own home or office, this prognosticator thinks.

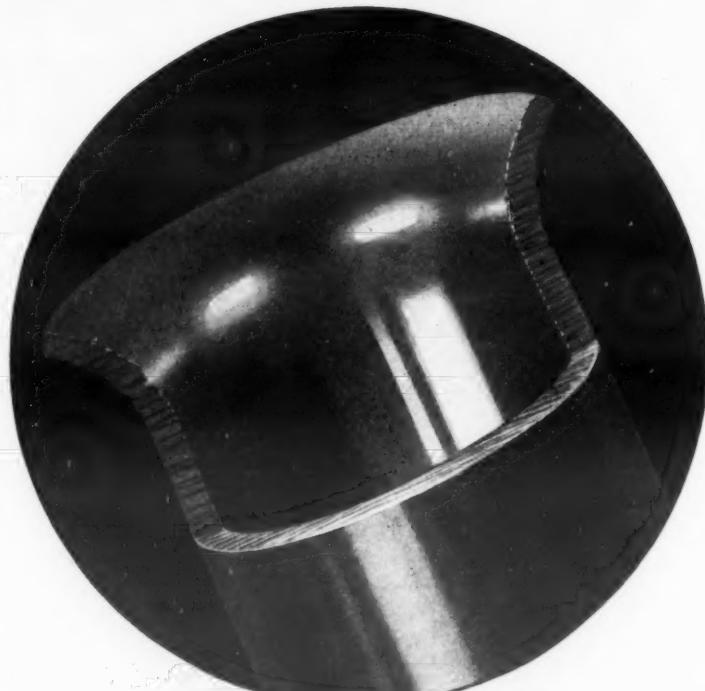
Effect on Window Shopping

"The streets will be the only hot places—and window-shopping will probably not be as prevalent as it is today. More, Mr. Jones will take his time when he shops—and much more important still, so will Mrs. Jones. It will be wise for merchandisers to watch the apparently unimportant factor of leisurely buying, which may affect many a product which depends in greater or less degree on quick purchasing habits.

"Hotels will feel the effects of the big change too. When Jones goes on tour, will he patronize the tourist camp in preference to the comfortably conditioned hotel a few miles further? Will Mr. Jones' file clerk go back home to Buffalo via bus, when she can travel in the comfort of an air-conditioned train? Unless the buses can adopt air conditioning, their threat against the railroads may be only transitory after all.

"Give air conditioning some thought now, while there is time to redesign, remodel, search for new sales appeals, new markets, to plan new advertising, new publicity," he advises.

Everlastingly ---



-- one solid, seamless, copper tube

not a crack, a flaw, or weak spot. Work it any way—swedge, flare, bend—it is perfect and stays that way. For refrigerants, water, air, oil—the cheapest—and best.

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Causes of Lubrication Troubles Cited For Sulphur Dioxide Machines

By Charles W. Johnston
Manager, Virginia Smelting Co.

THE PROBLEM of lubricating refrigeration units using sulphur dioxide as the refrigerant involves several equally important factors. This article will only attempt to point out a few things relative to the lubricant; that is, the oil used for the lubrication. It outlines the methods of refining and discusses the importance of proper handling of the oil after it leaves the refiner, and the reasons for such handling. The effects of water, air, and sulphur dioxide on oil are stated, and some of the causes of carbonization troubles are cited. Some physical properties of oils used are mentioned, but no attempt is made to recommend an oil for any particular machine or operating condition. To this extent, the article is general and not specific.

Lubricating oils are made from crude oil that occurs in the ground, and these crude oils vary to considerable extent in their composition. They are mixtures of many oils, each of which has different characteristics. These various oils boil at different temperatures, so by heating the crude oil, first to a low temperature, then to higher and higher temperatures, the refiner of the oil separates the various oils in the crude oil one from the other.

Fractional Distillation

This process of refining is known as fractional distillation. Fractional distillation separates oils that boil at different temperatures: it is not intended and should not convert one oil into another different oil, such as the cracking process does.

As generally practiced, fractional distillation is carried on by heating large quantities of crude oil in stills. These stills are direct fired and therefore the temperature of the oil in contact with surface of still being heated by the fire may be considerably higher than temperature at surface of oil where evaporation is taking place.

Does such chance of local overheating crack or decompose the oil; that is, actually change it? If it does change it, do these changes have any effect on the final products? Whether this condition changes the oil and whether or not such changes have any detrimental effect, if this action happens, it cannot happen in any uniform, regular, or controlled way and therefore the oil distilled off would tend to vary, that is, not be uniformly the same oil.

Importance of Uniformity

Perhaps no chemist or no test could disclose such variations, but it is well recognized that extremely small variations in any factor may have marked effect on the operation of a refrigeration unit. The best and most uniform products are the ones which make for greatest success of operation of refrigeration units.

Some refiners of oils used in refrigeration have adopted special stills, in which oil is exposed to a most carefully regulated and controlled temperature, and in which oil is heated uniformly for a brief period.

The oils made in this way require the very minimum amount of further treatment, whereas those made by direct fired stills do require considerable treatment with chemicals to separate from them the undesirable decomposed particles caused by excessive overheating.

Such further treatment may leave in refrigerating oil certain products which for ordinary lubricating use cause no trouble but which will cause considerable trouble in a system in which they come in contact with sulphur dioxide.

White Mineral Oils

A white mineral oil is a highly refined oil and it has been rather generally conceded that white oil is satisfactory for use with sulphur dioxide. It is, however, expensive, and has small solubility in sulphur dioxide.

While white oils are generally satisfactory, it has been proved that it is not necessary to carry the refining to a point where the oil is white in order to make an oil that is entirely satisfactory for use with sulphur dioxide.

Generally, the lighter the color of an oil the more highly refined it is; but this does not mean that of any two oils the lighter one would be better than a darker colored one, for a less refined oil might be better than a more highly refined one. The question of the process used in producing the oils and what that process has done to the oil in refining is important.

Those who are able to investigate the methods used in refining and study the oil from this as well as other angles, will get help towards solving their oil problem. The small user and one who cannot do this must depend on the integrity of the firm from which he buys.

If he confines his purchases to products with a reputation, refined by companies who have earned a reputation for reliable oils satisfactory for use with SO_2 , he should get an oil that is satisfactory.

The proper handling of an oil in every stage after it is made is of the greatest importance. The use of the right crude oil and proper refining methods only serve to produce a satisfactory oil, and the best oil after it is made can be

erating oils is that of gumming or sticking of the moving compressor parts. These so-called gums or sludge are polymerized hydrocarbons which have been formed due to the decomposition of certain portions of the oil in the process of distillation.

It is doubtful whether at the present time there is any test available which will determine whether or not a refrigerating oil contains these detrimental qualities, other than actually trying the oil in the refrigerating units.

Dependable Suppliers

Therefore, it is advisable to use refrigerating oils furnished by refiners who have had long experience with the refrigeration industry, because they have this quality well in mind, and are undoubtedly either refining the oil so the refrigerating oil does not have this quality, or treating the oil in order to remove these particles from the finished refrigerating oil.

In the study in our research laboratories to try to determine the conditions under which carbonization of oil when in contact with SO_2 takes place, we have found three factors which greatly accelerate such action. These factors are water, air (oxygen), and heat.

A dry oil that does not carbonize after a given number of hours when subjected to contact with dry SO_2 at temperatures under which a machine would normally operate, did carbonize rapidly when that temperature was raised.

Water, Air and Carbonization

An oil at proper temperature and in contact with dry SO_2 that did not carbonize at proper temperature, did carbonize when either water or air, or both were added.

In this connection, it should be remembered that any water present in the system may concentrate to a considerable extent at some point and this concentration of the water gives trouble, because at point of concentration there is relatively a large amount of water, whereas if all the water present were

always uniformly distributed through the system, there would be so small an amount at any one point it would not cause trouble.

This concentration of water is due to the fact that when liquid SO_2 evaporates, the water in it does not evaporate at a uniform rate, but the SO_2 gas going off from the liquid may contain much less water per pound of SO_2 than the liquid left behind.

In view of the reactions that take place, it is essential, if trouble is to be avoided, not only to use satisfactory refrigerant and proper oil that is carefully handled, but also to have the machine in proper condition to be charged, as well as to have the machine designed to avoid the chance of excessive heating under operating conditions.

Selection of Oils

It is not possible, or wise, to try to suggest any particular viscosity, fire test, flash test, etc., to meet all conditions, but the following general suggestions may be of some help in the selection of oils for use with SO_2 .

For small machines, oils with lower viscosities than are required in large machines may be used. That is, in small machines 100 viscosity at 100°F . may be all right, whereas in large machines 600 viscosity at 100°F . may be necessary.

Freezing units which operate at low temperatures require an oil with a pour point lower than do those units which operate at higher temperatures. A pour point of -25°F . is usually sufficiently low.

In general, the heavier the oil the more stable it is; but in some oils, unfortunately, the heavier the oil the more carbon forming matter there may be in the oil. Where for heavy duty work and high temperature conditions, heavy, high viscosity oil is needed, it would be well to give very particular consideration to the matter of how much of these carbon forming materials there is in the oil.

Both white oils and those with some color are being used. Water white oils are perhaps in a class by themselves,

but a white oil may have had color removed by filtration and may contain some of those things which would tend to cause the so-called carbonization troubles. The decision to use one oil in preference to another simply because one is lighter in color than another, is not to be recommended.

Lower Viscosity, Greater Absorption

Under the same conditions, such as pressure, temperature, etc., it is generally true that the lower the viscosity of any oil, the more SO_2 such oil will absorb. This absorbed SO_2 thins the oil and tends therefore to reduce its ability to lubricate. This should be borne in mind when considering the proper viscosity of oil.

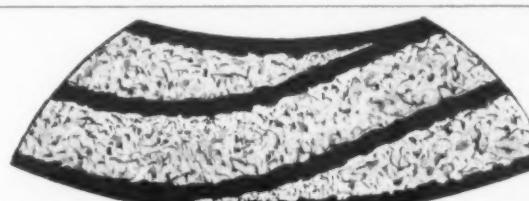
The problem of a proper oil involves not only determining the proper physical characteristics for the particular machine and the conditions under which that machine operates, but equally important is the selection of an oil which has been properly refined for use with SO_2 , and properly handled after it leaves the refinery.

In connection with these last two considerations, it should be borne in mind that much has been learned regarding these through experience, for many important factors have been discovered by the oil companies and makers of machines.

McKEE APPEALS REQUEST FOR USE OF 'ICED-AIRE'

WASHINGTON, D. C.—Reversed by the commissioner of patents, the McKee Refrigerator Co. of Cobleskill, N. Y., has carried to the United States Court of Customs and Patent Appeals its fight for registration of "Iced-Aire" as a trade-mark for its refrigerators.

Although no other manufacturer appeared as an opposer, the United States Patent Office withdrew its provisional sanction to use of this term after the commissioner on interferences reported the likelihood of confusion in the trade due to prior registration of "Frigidaire."



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Copper Coated Inside and Outside



Bundy Tubing Company, Detroit, Michigan, U. S. A.

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The Business Newspaper of the Refrigeration Industry

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Production Planning

ONE of the questions occupying the minds of a great many production and sales executives right now is the completion of production schedules for next year. Several leading companies have settled on some of their next year's models and are tooling for production. Quotas are being established, the market analyzed, and decisions formulated as to the extent of 1932 manufacturing programs.

Suppliers of newly-designed parts, materials, and accessories are actively urging the adoption of their equipment by manufacturers of complete refrigeration systems. Engineering departments of manufacturers are especially intent on examining the new valves, insulations, and other parts that are offered to them for approval.

Problem in Visualization

Production executives who must cast ahead in this fashion are facing a difficult task. They know that if it were possible to visualize an entire year's operation beforehand they would be better prepared to control quality, keep down manufacturing costs, and keep shipping promises. They also know how much should be taken into consideration before so comprehensive a visualization is attempted.

Engineers can examine records of past years and come to a conclusion as to what output can be expected from a given factory, and what its economical capacity is; but sales officials have learned by experience that past performances of a selling organization must be interpreted very intelligently in the light of many factors, both tangible and intangible, before a reasonable estimate can be made on future sales. Hence the co-ordinated planning by both sales and production men is important right now in forecasting next year's work.

Expecting Contingencies

No matter how carefully and intelligently a sales forecast is made and how carefully the production schedules based on it are projected, contingencies are apt to arise which might affect successful operation unless the plans are susceptible to revision. Thus, "control through correction" helps lessen the possibility of either over-production or failure to meet shipping promises.

New developments come so fast in the electric refrigeration industry that manufacturers feel they should be prepared to adjust production and revise designs to match the effect of improvements made on competitive machines.

One company's introduction of a new condensing unit or of a new control may start a trend toward design changes which would be impractical but for production flexibility and for the alertness of the engineering staff.

Allotting Production

To keep on the payroll all skilled workmen whose experience in machine manufacture helps to maintain quality and keep down costs, to avoid the necessity for an uneconomical manufacturing rush, and to build the greatest number of units possible with a fixed manufacturing investment, most companies make some effort to allot their production somewhat evenly over the entire year.

This practice is probably carried further by the larger companies in the industry than by some of

the smaller ones, who are more apt to build according to more or less immediate demands.

An executive of one of the leading companies recently voiced the opinion that no firm in the industry leveled production so well that it did not have to refuse some orders during April or May. He pointed out that because of possible economic changes or competitive design innovations, they are likely to avoid making definite commitments which might be extremely difficult to meet.

This organization maintains unusually low inventories, follows a fixed production program for only 30 days, a somewhat definite schedule for 60 days, and makes little attempt to forecast production 90 days beforehand.

Another one of the leaders claims to build its refrigerators on a fairly even schedule throughout the year, with a slight production peak during May. This company is able to carry out its plan because it possesses warehouses throughout the country, in which its refrigerators may be stored pending call.

Controlling Inventories

Intelligent production planning contributes to the elimination of excessive inventories, gives suppliers a chance to plan their own schedules accordingly, and helps the latter to the same production advantages as the refrigerator manufacturers may enjoy.

The whole business of production planning calls for sound judgment, correlation of a great many diverse factors, and intelligent interpretation of past experience. The magnitude of the task, however, is paralleled by its importance; and men who have had reasonable success with such forecasting are sure to command the respect and admiration they deserve.

GLEANINGS FROM RECENT PERIODICALS

WITHIN a year, Philadelphia's skyline will be graced by a 33-story bank and office building for the Philadelphia Saving Fund Society equipped with a modern air conditioning system.

Each conditioning unit comprises a filter, preheater, dehumidifier, reheat, ionizer, fan, controlling dampers, etc. The location of the filter in each case is such that all return air is filtered.

The conditioning units for the basement and first floor are located in the sub-basement. Six other conditioning units are located in a portion of the third mezzanine over the bank, which encloses the main trusses of the bank building ceiling. This space is designated as the fan gallery.

The arrangement of exhaust fans is different, owing to space limitations. With the exception of one unit, all exhaust fans for the conditioning system are located on the thirty-third floor.

Air from the exterior is taken in through a setback roof at the third floor level, and is supplied to the units on the fan gallery through a long narrow chamber. A portion of this air is carried in a shaft to the sub-basement, where it enters the two conditioning units there and likewise a sub-basement supply unit, which, however, is not a conditioning unit.

Of the supply air, 162,000 cu. ft. per minute are handled by the eight main conditioning units, which cool by refrigeration in the summer. One hundred and twenty-one thousand cu. ft. per minute of this air normally will be recirculated.

Great care has been taken in the design of the air distribution in the spaces concerned, as one of the chief difficulties to date in air conditioning has been the successful avoidance of cold drafts.

In general, air is admitted to the respective spaces through horizontal ceiling plaques, which will be incorporated in the design of the lighting fixtures.

The main banking area is illuminated from two horizontal coves, each over a line of columns. In this room air will be admitted over these coves. Some air will likewise be admitted at the windows.

Air will be exhausted from all areas through widely distributed registers near the floor line.

The refrigerating plant consists of two 200-ton compressors, each driven by a 300-hp. synchronous motor, together with the necessary auxiliary condensers, etc. The refrigerant will be CH_2Cl_2 .

The refrigerating apparatus will be located in the sub-basement.

The chilled water to, and the return water from, the units on the fan gallery is circulated through cooling coils in the refrigeration plant in the sub-basement, and through risers to the fan gallery. The refrigerating plant is used for conditioning only.

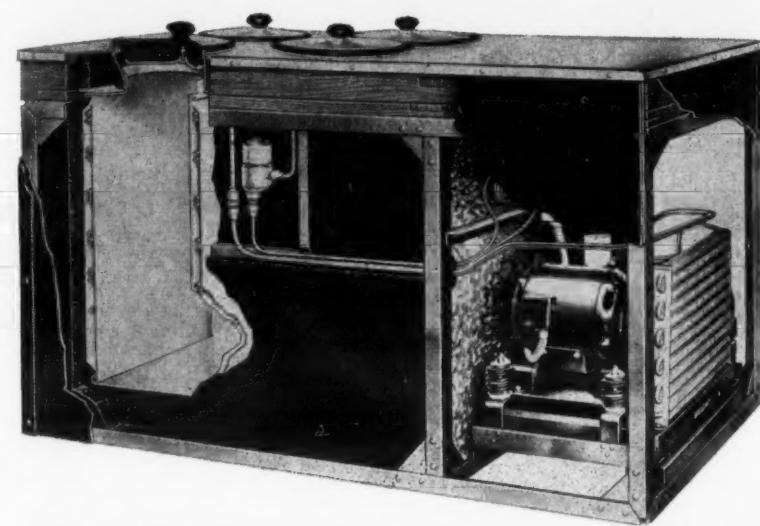
An additional feature of interest is that two deep wells will be drilled in the sub-basement, and this water used for condensing purposes in the refrigerating system.

In mid-summer, the temperature of city water runs between 75° and 80° F., whereas well water would probably be between 55° and 60° F. The use of this water for condensing purposes in the coolers will effect a considerable economy in the operation of the refrigerating plant.

Furthermore, it is not hard to conceive that the rapid trend toward air conditioning will eventually introduce a severe burden on the city supply mains, and it was felt desirable to relieve this burden as much as possible.

The present sanitary code of Philadelphia will not permit the use of this water in the domestic water system after leaving the coolers, otherwise some saving might be made in this way.—November issue of *The Superintendent*.

Cut-away of Frigidaire Cabinet



New four-hole portable Frigidaire ice cream cabinet, direct expansion.

Barsky Petitions Court for Patent

WASHINGTON, D. C.—Holding that the mere substitution of an air cooled condenser for a water cooled condenser in a refrigerating system does not amount to invention, the patent office has declined to recognize the claims of George Barsky of New York City, and as a result Mr. Barsky has petitioned the United States Court of Customs and Patent Appeals for a review.

Mr. Barsky is a member of several scientific societies, including the American Society of Refrigeration Engineers, holds several engineering degrees from Columbia University, and has devoted several years to a study of air cooling.

"It has," he asserts, "been considered impossible to use air cooling in a household absorption type machine with the ordinary refrigerants. Taking ammonia for example: If air cooling were used in a household machine, the inefficiency of such cooling would cause the ammonia to develop a high pressure within the system," he says.

The discovery that methylamine in an absorption household type machine does allow air to be used for cooling was therefore somewhat unexpected and was based upon two considerations, he explains. "First, the vapor pressure of methylamine is lower than ammonia and therefore it can go to higher temperatures than ammonia without creating such a high pressure. This higher temperature gives a greater temperature gradient and transfers heat more quickly to air. Second, the latent heat of methylamine is high and it results in an effective utilization of the cooling area by transferring a relatively large number of heat units to the air," Mr. Barsky claims.

Although the examiners question the likelihood of success in an experiment of this kind with a household unit, the rejection is based solely upon the ground that no inventive faculty is required to make the substitution of air for water.

MELLON INSTITUTE DEVELOPS NEW MOLDING MATERIAL

PITTSBURGH—The Mellon Institute of Industrial Research, here, has just released a report on the new heat-reactive molding compound which is now being produced commercially in the plant of the Toledo Synthetic Products, Inc., Toledo. This new urea base compound called "Plaskon" was evolved at the Mellon Institute under a series of Industrial Fellowships sustained by the Toledo Scale.

Plaskon is said to be easily performed; which, in conjunction with its high speed of cure, makes possible rapid fabrication by the molder, the report claims.

Fabricated Plaskon may combine bright colors in its base shade of natural translucency, permitting pigmenting of any color of any intensity, either opaque or translucent, according to the institute.

The material has a specific gravity of 1.43; a modulus of rupture of 10,000 to 14,000 lbs. per sq. in.; a tensile strength from 4,000 to 6,000 lbs. per sq. in.; a compressive strength of 25,000 to 30,000 lbs. per sq. in.; and an impact strength of 0.7 to 1.2 lbs.

It is supposed to be moderately resistant to cold dilute acids, not to hot or concentrated acids. It is unaffected by alcohol, acetone, oil, or other common solvents, the report claims, and somewhat resistant to alkalies.

Hardness on the Mohr scale was found to range from 3.0 to 3.5, and with the sclerometer from 80 to 95.

H. T. GILBERT NOW WITH MIDLAND STEEL

CLEVELAND—Harry T. Gilbert, formerly vice president in charge of sales for the Republic Steel Corp., has been named general manager of the Midland Steel Products Co. of this city.

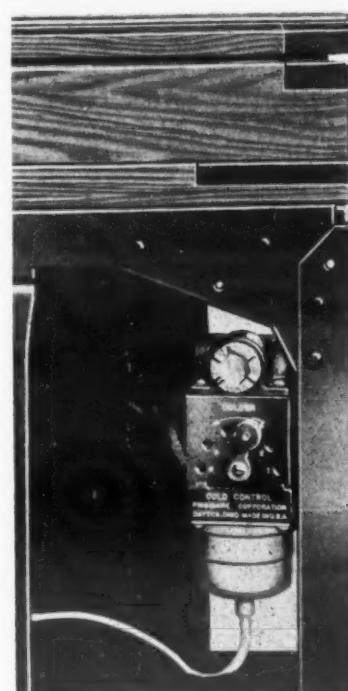
FRIGIDAIRE CHANGES ICE CREAM CABINET

(Concluded from Page 1, Column 4)
sealed into the cabinet before it leaves the factory. In the larger models the flooded system is retained.

Lids on the new cabinets use a hard collar with a flexible rubber sealing ring. A polished hard rubber knob replaces the former metal knob and the top and bottom of the lid made of bright, stainless metal.

The tops of all cabinets are finished in bright metal, backed up with heavy gauge galvanized iron, permitting the addition of more cork insulation and doing away with the plywood formerly used. As a result of the change the top has been made more rigid in construction.

Control Mechanism



Thermostatic temperature control on rear of new Frigidaire.

tion and danger of warping has been reduced, the factory announcement maintains.

In bringing out the new line, Frigidaire is introducing twin-cylinder compressors of the reciprocating type. "The new compressors," according to Mr. Vandoren, "are quieter in operation, more accessible for servicing, and more rigid in construction. Motors are mounted on rubber. A stronger belt is being used and an automatic belt adjuster has been provided. A finned radiator type condenser has been introduced to provide increased cooling surface.

The standard line of cabinets ranges from two to six holes in single rows and from four to 12 holes in double rows. Portable models include two, three, and four-hole cabinets. There are, in addition, two combination cabinets for ice cream and bottled beverages. They offer two or four holes for ice cream storage, and each is equipped with a compartment for bottle cooling.

NEW LEAD FUSION PROCESS FOUND IN CLEVELAND

CLEVELAND—Development of a new lead coating process has been announced by the Gross Engineering Corp. of this city. "Leadhesion" may be applied in practically any thickness to metal surfaces, as a protection against corrosion, its manufacturers claim. It is applied by a fusion method.

60% EXTERNAL AREA FOR HYDRO-THERMALS

PHILADELPHIA—Hydro-Thermal Grids installed in commercial refrigerators for light service work should be chosen with a surface area equal to 60 per cent of the external surface of the refrigerator, engineers for the American Engineering Co. state. For heavy service the evaporator surface should be no less than 70 per cent of the outside surface of the box, W. J. Harbers, chief engineer, recommends.

The cooling units should be installed with the fins parallel with the direction of the circulating air current, he points out.

Tables giving the engineering department's recommendations for the selection of units for display cases, combination coolers, and storage coolers are reproduced below.

Size	Model	Length of Grid, Inches	No. of Grids	No. Area Ft. Sq. Ft.
Top Display Cases—Back Bunker Type				
6	M-60	60	1	37
8	M-84	84	1	54
10	M-108	108	1	70
12	M-120	120	1	78
14	M-72	72	2	90
16	M-84	84	2	108
18	M-96	96	2	124

Note: Check the inside length of the case and use grids extending as nearly as possible the full inside length. Install the grids on supports as high as possible in the bunker with the fittings vertical.

Combination Top Display and Bottom Storage Cases

for delicatessen and moderate temperature service	No. Area Sq. Ft.
8 S-84	84 2 66
10 S-108	108 2 86
12 S-120	120 2 96
14 S-72	72 4 112
16 S-84	84 4 182

Combination Top Display and Bottom Storage Cases

for fresh meats and heavy duty refrigeration service

8	S-84 Top	84	1	33
M-84 Bottom	84	1	54	
10 S-108 Top	108	1	43	
M-108 Bottom	108	1	70	
12 S-120 Top	120	1	48	
M-120 Bottom	120	1	78	
14 S-72 Top	72	2	56	
M-72 Bottom	72	2	90	
16 S-84 Top	84	2	66	
M-84 Bottom	84	2	108	

Storage Coolers

W. D. H.	5 4 10	L-36	36	3	105
6 4 10	L-48	48	3	147	
6 5 10	L-60	60	3	189	
7 5 10	L-60	60	3	189	
7 6 10	L-72	72	3	231	
8 6 10	L-72	72	3	231	
8 8 10	L-84	84	3	273	
9 7 10	L-84	84	3	273	
10 6 10	L-84	84	3	273	
10 8 10	L-86	96	3	315	
10 10 10	L-84	84	4	364	
12 10 10	L-96	96	4	420	
Side Icer Type	6 5 7	L-48	48	3	147
6 6 8	L-60	60	3	189	
7 6 8	L-60	60	3	189	
7 7 8	L-72	72	3	231	
8 8 8	L-72	72	3	231	

Mr. Harbers advises installation men always to check the inside length of a case, and to use a grid that will extend as nearly as possible along the full inside length. "Grids should be installed with fins and fittings vertical," he says.

HARTFORD ELECTRIC BUYS 2 CARRIER ROOM COOLERS

HARTFORD, Conn.—Two Carrier Atmospheric Cabinets have been installed in the directors' room of the Hartford Electric Light Co., here, by the Automatic Refrigerating Co. Each cooler is operated by a 1-hp. Servel condensing unit, according to L. C. Roberts, chief engineer. The directors' room contains approximately 4,200 cu. ft. of space, and is kept about 10° cooler than outside temperatures during the summer weather, he states.

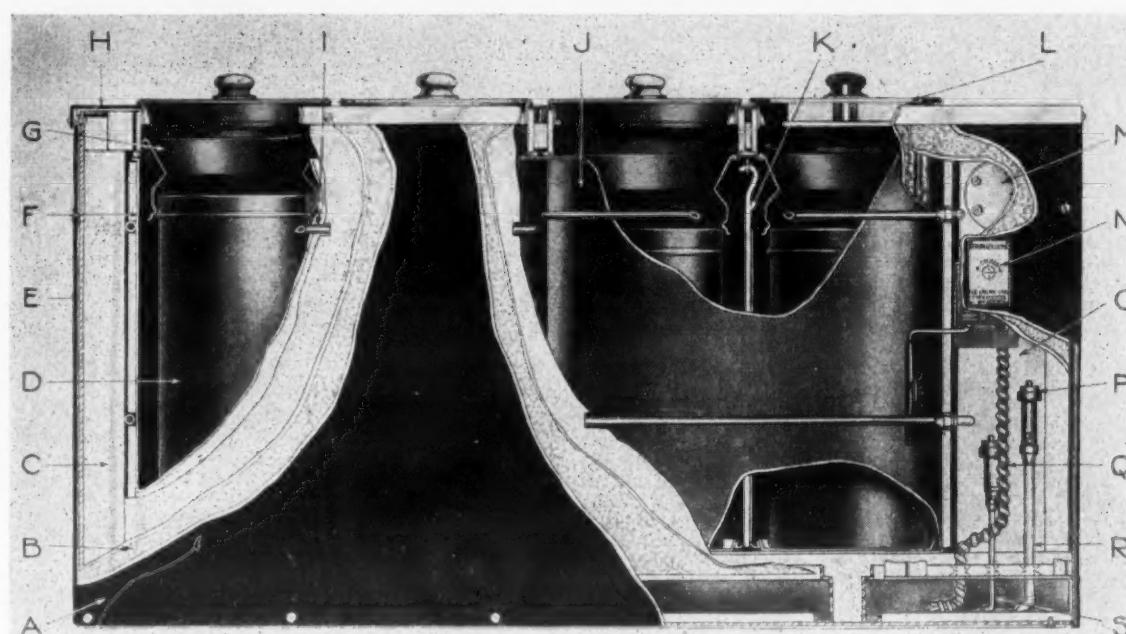
FRIGIDAIRE WATER COOLER USED AT BOULDER DAM

LAS VEGAS, Nev.—In the hottest place on the Boulder Dam project, in the Black Canyon of the Colorado, is a Frigidaire water cooler delivering refreshing cold water to thirsty workmen on this mammoth irrigation and water power project.

On the day the water cooler was installed by Dealer C. E. Pembroke, the temperature on the job was checked at 128° in the shade. Two workmen were prostrated by the heat on the same day.

The cooler is fitted with a 100-gallon tank, while two Frigidaire 47-R coils provide cooling. A bubbler as well as a faucet is provided, the latter to allow workmen to fill their desert bags before they go out on their jobs. High temperatures down on the river bed, where towering canyon walls of lava rock keep out breezes and reflect the terrific heat have created a tremendous demand on the water cooler, which has maintained a constant supply of 50° drinking water at all times.

Heat Inter-changer Features New G. E.



Cut-away view of General Electric's new ice cream cabinet shows the following elements: A—Exterior removable panels of black porcelain on steel. B—Secondary galvanized iron panels to seal the insulation. C—Insulation. D—Five-gallon ice cream can. E—Angle iron frame. F—Tinned copper liner. G—Retainer ring for cans. H—Monel metal top. I—Seamless copper evaporator coil soldered to outside of liner. J—Tinned copper interior liner. K—Bar wire removable partition. L—Insulated lid. M—Float chamber. N—Temperature adjustment. O—Heat inter-changer assembly. P—Service valves. Q—Electrical connection to cabinet control. R—Suction line to compressor. S—Liquid line to condenser.

NEW G. E. ICE CREAM UNIT HAS HEAT INTER-CHANGER

(Concluded from Page 1, Column 5) liners surround the can compartments, while the cabinet tops are of Monel metal.

The temperature control is located on the rear of the cabinet itself, and is immediately accessible.

A new feature of the ice cream cabinets is the heat inter-changer which pre-cools the warm refrigerant returning from the compressor to the evaporator, by the coldness of the refrigerant going from the evaporator to the compressor. This is accomplished by a double coil arrangement.

W. E. Landmesser, manager of the commercial division of the G. E. refrigeration department, claims the heat inter-changer increases the efficiency of the machine from 12 to 15 per cent.

The refrigerant SO₂ is expanded into seamless copper evaporator coils soldered to the outside of the copper liners which distribute the refrigerating effect to the cans. No brine is used, the liners offering the cooling surface.

By leaving out the ice cream cans, General Electric engineers point out, the interior compartment can be used to store brick or bulk ice cream.

Chinese Engineer



WILFRED WONG

WILL RETURN TO CHINA AS COMMERCIAL ENGINEER

TORONTO—Wilfred Wong, recent graduate of the University of Toronto, who has spent the past six months with the local Frigidaire organization as a commercial sales engineer, will sail on Nov. 30 for Shanghai, where he will become a sales engineer for the American Engineering Corp., distributor of Frigidaire products in Shanghai, China.

After graduating from the college of commerce and finance of the University of Toronto, Mr. Wong took a special course in engineering. Upon completing his education he decided upon refrigeration as the field which will offer the greatest opportunity for the future in his native country.

ICE CREAM DELIVERY MEN TO STUDY SERVICE

BALTIMORE, Md.—The Jersey Ice Cream Co., here, local subsidiary of the Beatrice Creamery Co., of Chicago, has established a school for Frigidaire electric refrigeration instruction.

The purpose of this school is to instruct the delivery crew of the concern, who upon successful completion of instruction, will be in a position to service the Frigidaire refrigerated ice cream cabinets which are installed in the confectioneries, drug stores, and other establishments that carry the Jersey Meadow Gold Ice Cream.

All drivers of delivery trucks will service all stores on their respective routes. This is expected to eliminate many complaints, and to improve the refrigeration of ice cream in the stores.

The Jersey Ice Cream Co. has maintained a Frigidaire division, the function of which has been the servicing of Frigidaire equipped cabinets in retail stores. This has been in charge of Nathan Bliss, vice president of the company, who will continue in charge as well as act as production manager, a new post given him. The Frigidaire school will supplement this work.

GEORGE W. MOORE MERGES WITH LINK-BELT CO.

CHICAGO—Merging of the George W. Moore Co., here, with H. W. Caldwell & Son Co., a subsidiary of Link-Belt Co., is announced by Alfred Kauffmann, president of the Link-Belt Co. The combined units are to be known as the Caldwell-Moore division of the Link-Belt Co.

Max H. Hurd, former president of the George W. Moore Co., becomes a vice president in charge of the Caldwell-Moore operations. His headquarters will be at 2410 W. 18th St., Chicago.

VIBRATION

finds no fulcrum in a Mueller Patented Joint



IN A flared joint the clearance between the bore of the nut and the outside diameter of the tube gives no support to that portion of the tube, exclusive of the flare, inside of the joint. Only the flare itself is held rigidly on its seat. Vibration set up by the compressor finds a leverage in the tube length leading into the joint and the tube, unsupported at any other place, hinges at the base of the flare. Leakage is inevitable.

In a Mueller patented joint the solder film forms a perfect bond between the tube and the fitting. The tube cannot leak inside of the joint because

the tube and fitting are integral. Vibration is taken up in the tube itself and the joint remains leak-proof. In contrast to all other methods, the connection between Mueller STREAMLINE copper tube and Mueller STREAMLINE fittings is the strongest point in an unusually strong installation.

If you are not thoroughly familiar with the advantages of STREAMLINE products in a refrigeration installation, write or wire at our expense.

We also manufacture a complete line of valves and fittings and can supply your every requirement.

Mueller Brass Co.

PORT HURON, MICHIGAN

MUELLER BRASS CO. OF CANADA, LIMITED, TORONTO, ONTARIO



STREAMLINE Coupling
Copper to Copper
Patent 1,770,852.
Patent 1,776,502.
Other patents pending.

STREAMLINE Coupling
Copper to Outside,
I. P. S.
Patent 1,770,852.
Patent 1,776,502.
Other patents pending.

STREAMLINE Tee
Copper to Copper to
Copper
Patent 1,770,852.
Patent 1,776,502.
Other patents pending.

STREAMLINE Cross
Copper to Inside
I. P. S. Thread
Patent 1,770,852.
Patent 1,776,502.
Other patents pending.

PHILADELPHIA OFFICE OPENED FOR PENN SWITCH

PHILADELPHIA—A new sales office for the Penn Electric Switch Co., Des Moines, Iowa, has been opened here. It will be managed by R. V. Clark.

BUHRING WATER PURIFIERS

have been sold since 1891. During these 40 years they have been imitated in appearance, but never equalled in quality and performance.

GUARANTEED to remove taste, color and odor.

For Information Write

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REPRESENTATIVES: Allen-Buhring Water Purifying Service, Chicago, Ill.; Boston Water Purifier Co., New York; Boston Filter Co., Boston, Mass.

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Refrigerators—Water Coolers

New model now available for
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Specialized FORGINGS



for every
Electrical
REFRIGERATION
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**Revere
Brass Forgings**

(TWICE WROUGHT)

eliminate manufacturing handicaps

"If it would be necessary to revert back to castings in the place of brass forgings which we are using at present, the electric refrigeration industry would be seriously handicapped in its manufacturing program."

So writes one of the leading refrigerator manufacturers. This plant has come to depend on Revere Brass Forgings for their close grain structure which makes them gas tight. Other advantages are their greater strength, their lightness of weight and their greater speed in machining.

Other Revere Products for the refrigerator industry:

Sheet Copper . . . available in every commercial variety.

Brass Rod . . . especially suited for high speed screw machine production.

Dehydrated Seamless Copper Tubing . . . a 99.9% pure copper pipe for coils and installation lines. Deoxidized, annealed and free from flaws. Dehydrated and sealed against moisture.

For further information address Revere Copper and Brass Incorporated, 230 Park Avenue, New York City.

Revere Copper and Brass

INCORPORATED

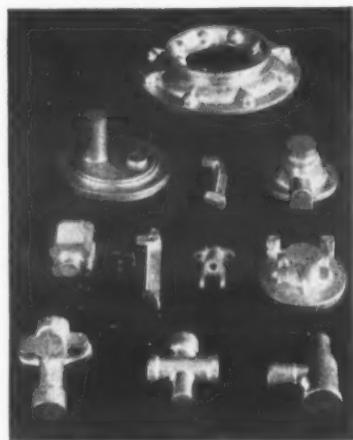
Baltimore Division, Baltimore, Md.

Higgins Division, Detroit, Mich.

Taunton-New Bedford Division, Taunton, Mass.

EXECUTIVE OFFICES: NEW YORK CITY

GENERAL OFFICES: ROME, N. Y.



RUTHENBURG URGES FOREMEN TO HEED HUMAN RELATIONS

DAYTON—Addressing the Dayton Chapter of the National Association of Foremen here last Thursday night, Louis Ruthenburg, president of Cope land Products, Inc., Mt. Clemens, Mich., told approximately 1,000 foremen who attended the gathering that not only must they be trained in the technical aspects of their jobs, but also in the human equations as well.

The National Association of Foremen is an organization which had its inception about 10 years ago when the Dayton chapter was started by Mr. Ruthen burg, who at that time was general superintendent of the Dayton Engineering Laboratories and instructor of the foremen training class at the Dayton Y. M. C. A. The movement spread until it became a national organization, including foremen of many manufacturing companies in practically all cities. "Unfair treatment of labor by management," said Mr. Ruthenburg, "is followed by retaliatory measures on the part of labor. Action and reaction. Depressions follow boom periods just as headaches follow 'sprees.' Action and reaction. Intolerance as expressed in prohibition is followed by intemperance and law-breaking. Again action and reaction. In politics the reactionaries always follow the liberals. Too much Bourbonism is followed by too much democracy," he averred.

"No production man would contend that all of our productive and non-productive positions are filled by entirely competent people. Many enlightened production men will admit that a measurable increase of efficiency might result from more consistent and more comprehensive training. Possibly we shall deal more effectively with industrial education during the next few years than we have in the past. As far as the manufacturing division is concerned, this is distinctly the production man's problem," he said.

We have demonstrated repeatedly the futility of leaving the important function to the personnel director who cannot in the nature of things have the most effective contact for accomplishing maximum results, he maintained. Consistent, continuous training of apprentices, productive workers, clerical workers, job setters, foremen and their assistants will bring about more satisfactory performance in respect to meeting schedules, improving the production and reducing costs, Mr. Ruthenburg con-

tinued. "And this will be distinctly the production man's job.

"Not only must our people be trained in the technical aspects of their jobs. They must be so trained as to appreciate the viewpoint and the necessities of all departments of the business with which they come in contact. Our foremen can no longer be merely the master mechanics of their departments. They must become departmental general managers and that means that, in addition to knowing the technical elements of their jobs, they must understand its economic and human aspects.

"Aren't we all just a little lop-sided? Having been trained as shop men and engineers, aren't we likely to give more thought to technical matters than to the economic and human phase of our responsibilities? We are pretty sure of our constants and variables in technical matters. What of the constants and variables involved in our economic and human equations?" he asked.

Surely the shop trained man and the engineer should, by virtue of their training, be able to comprehend the application of certain fundamental laws which control economic movements and human relationships far better than men trained in other fields, he concluded.

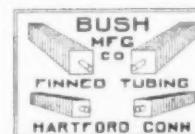
REFRIGERATOR COIN DEVICE PLANNED BY OHIO FIRM

FINDLAY, Ohio—The R & R Appliance Co., Inc., of this city announces that it is planning to place on the market a new coin controlling device for electric refrigerators.

The mechanism is similar to the coin device which this company has been furnishing for use with radio sets. The refrigerator attachment will operate a machine for 24 hours when a 25-cent coin is inserted, according to J. E. Janes of the R & R organization.

CONDENSERS
STANDARD SIZES OR TO YOUR SPECIFICATIONS
FINNED TUBING

FOR BOTH HIGH
AND LOW PRESSURE
SYSTEMS



IN COPPER, BRASS,
ALUMINUM OR
STEEL

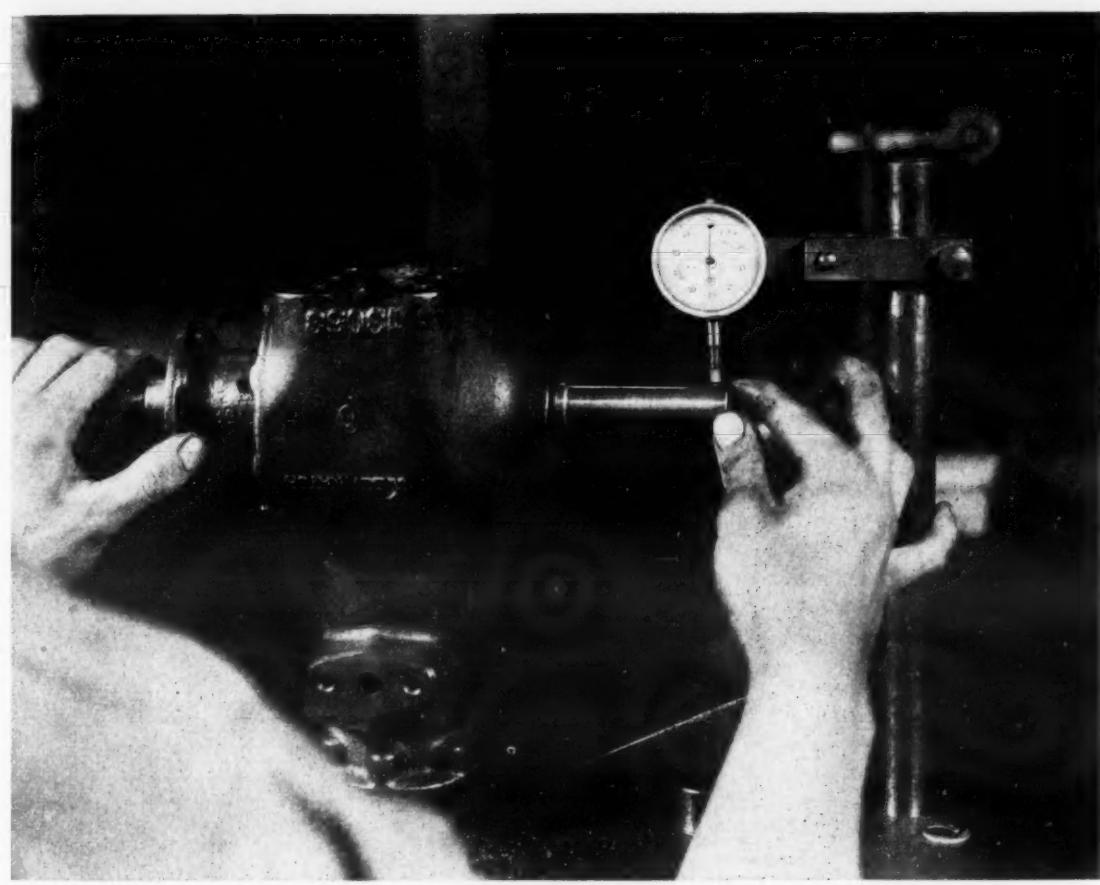
THE BUSH MFG. CO.
HARTFORD, CONN.

W. H. MARK HANNA, 6-247 General Motors Bldg., DETROIT, MICH.
REFRIGERATION APPLIANCES, CHICAGO VAN. D. CLOTHIER, LOS ANGELES

**Sulphur Dioxide
For Direct Charging!**
Every Container Analyzed
"Pure" Bone Dry . . . Cylinders
2 to 150 lbs

ANSUL Chemical Co.
MARINETTE, WIS. // Also . . .
Ten Drums-Ton Cans.

Checking Kelvinator Compressor Blocks



Close-up of Kelvinator inspection of a compressor block for squareness from the cylinder bore to the crankshaft bore, which is held within .002 in. over a 14-in. arbor.

**C. E. RICE CO. ANNOUNCES
NEW LIQUID LINE FILTER**

SPRINGFIELD, Mass.—C. E. Rice Co., Inc., which recently put on the market a new refrigerant drier-filter, has followed this with a liquid line filter, designed for permanent installation in household or commercial systems. Its purpose is to remove dirt and dust.

The unit is of cylindrical shape, with a non-collapsible strainer of 150-mesh wire cloth. After passing through this into the inside of the strainer, the liquid must go through a fibrous material occupying one end of the chamber to the depth of three-fourths of an inch, and finally must pass through a filter pad inserted in a recessed portion of the cap.

The apparatus is sealed with a gasket and makes a tight joint when the cap is screwed down. Built of brass, the product is 6 in. long and 1 1/4 in. in diameter, outside dimensions, with a hexagonal cap on each end.

**GENERAL ELECTRIC OPENS
WELDING DESIGN SCHOOL**

SCHENECTADY, N. Y.—The General Electric Co. has opened a school here of welding design to teach engineers, architects, and draftsmen, both in and out of its employ, methods of designing welded buildings.

There is no charge for instruction in the course, which requires approximately four weeks for completion. The course requires that the applicant be an engineer, or have some training in structural design or some experience in the design of riveted structures, as it will then be only necessary for him to learn the difference between the application of welding and riveting to steel frames.

**Air Conditioning Needed
More in Winter,
Engineer Says**

ATLANTIC CITY, N. J.—"Air conditioning—by which I mean that the air is washed, humidified, and circulated—is needed more in winter than in summer," Zay Jeffries, consulting metallurgist for the Aluminum Corp. of America, declared in speaking before the general session of the American Gas Association convention, Thursday morning, Oct. 15.

The air conditioning device, for best winter operation, should be supplied with about 225 gal. of water per 24 hours at a temperature of 120° F., he averred.

He estimated that for an assumed operation of seven months per year, each conditioning device would require about 100,000 cu. ft. of gas.

"The people of the United States could use 10 million of such devices, but if only one million are put into service during the next few years, it means two to three hundred million dollars of new business, an increase in water consumption, an increase in the consumption of electrical energy and an annual increase in gas consumption for heating water alone of about one hundred billion cu. ft.," he concluded.

**SEATTLE FIRM TO MAKE
SOLID CARBON DIOXIDE**

SEATTLE, Wash.—The Gas-Ice Corp., recently organized with offices in the Northern Life Tower, here, will develop carbon dioxide resources in Klickitat County, Washington, where the corporation has leased the property from the J. W. Langdon estate.

R. B. Newbern is president, S. A. McCune is vice president, and Louis Hoeffle is secretary of this new corporation.

Leased property includes 1,116 acres of land, four producing CO₂ wells, the Klickitat Mineral Springs, and manufacturing plant. Contracts have already been placed with the York Ice Machinery Co. for the immediate installation of manufacturing equipment with a capacity of 7,000 pounds of solid carbon dioxide a day.

The plant has been designed for an ultimate capacity of 14,000 pounds with minor alteration. Gas-ice will be placed on the market in Feb., 1932, according to present plans of the corporation.

**SOUTHERN PACIFIC FERRIES
BUY G. E. REFRIGERATORS**

SAN FRANCISCO—Five of the Diesel electric motor ships operated by the Southern Pacific Co. between San Francisco and points on the bay have just been equipped with 60-cu. ft. special General Electric refrigerators.

The ferries, which are named the "Golden Age," "Golden Bear," "Golden Poppy," "Golden Shore," and "Golden State," operate in San Francisco Bay and their run between points takes from 20 minutes to two hours. For this reason the company maintains restaurants on every boat to accommodate passengers. The first installation was made a week ago on the "Golden Age" by the L. H. Bennett Co., Ltd., distributor in San Francisco.

'Dean' Cooper and His Servel Students



Servel commercial service and installation men pack up and go to Evansville, Ind., for refrigeration training under the tutelage of S. R. Cooper (seated at desk at right). From left to right, the students in the above class include: E. M. Lant, Booneville, Ind.; E. S. Bettcher, Denver; H. A. Walther, St. Louis; L. D. Woodliff, St. Louis; A. E. Dempsey, Providence, R. I.; J. W. Ball, Evansville; W. H. Wiseman, Greenville, Miss.; J. L. Massey, Tulsa.

SERVICE HINTS

By FRANK W. GRAY

A SERVICE man recently presented an interesting problem in apartment house operation. This building, 12 stories high with 120 kitchens, had constantly developed oil trouble since time of installation. When the surplus oil was withdrawn from oil-logged coils at the extremities of the risers, the compressors were apt to pound and squeak with dry bearings. And when oil was added, the coils on the upper floors of the building were apt to go warm and be found loaded with oil.

Upon investigation, it was found that this apartment house was being operated by three 1½-hp. methyl chloride compressors, making a total of 40 cooling coils installed in 5-cu. ft. boxes to each machine.

The compressors were installed in a special room in the rear corner of the basement, horizontal tubing runs of as long as 75 ft. being necessary to connect up the 100-ft. vertical risers. One-half-inch copper tubing was used for the suction line mains in the basement, and in the risers up to the second story, after which 5/16-in. suction tubing was used in the suction line runs up the remaining 10 stories.

It was obvious that several construction factors might be contributing to the oil trouble in this system. In the first place, the installation was under-powered, 40 cooling coils on each 1½-hp. compressor being too many, particularly because of the long, indirect tubing runs necessary to connect up the various tiers of kitchens in a building of this size.

In the second place, ½-in. suction line tubing should have been used throughout the building, the 5/16-in. suction tubing allowing too much line loss in runs of over 100 ft. in length. In the third place, the compressors should have been located at the bases of the risers, instead of being placed in a room in the rear corner of the building.

All three of these factors, of course, contributed to retarded circulation of the refrigerant in this system, allowing the oil to collect in the coils at the extremities of the risers, instead of being pumped back in the normal way.

The poor operating condition of this system was corrected by the installation of another 1½-hp. compressor, which supplied the extra power necessary to speed up the circulation of refrigerant and correct the oil logging.

The design of the system could, of course, have been further improved by moving the compressors up to the center of the building, thus shortening the horizontal basement tubing runs, and by installing ½-in. suction line throughout. But since these latter remedies were not in this case practicable, the difficulty was solved by the installation of the extra compressor.

Oil Return on Fountain Job

An ice cream fountain conversion job was recently inspected which also presented a problem in oil return. A ½-hp. sulphur dioxide compressor, located in the basement in the rear of a long store building, was connected to an ice cream fountain by a long run of tubing under the floor of the building.

The cooling coil in this fountain was operating spasmodically, the ice cream cans being down to temperature one day, and warm the next day, with no apparent rhyme or reason to the performance.

At times the compressor was found to be pulling almost a complete vacuum, as though there was a stoppage somewhere in the suction line. It was found, upon inspection, that the liquid and

suction lines had been run from the compressor under the building through a 3-ft. clearance between the floor and the ground, the basement in which the compressor was located being very small.

The suction line extended back in a long, downward curve, instead of being bracketed to the floor beams, thus forming a natural oil trap. Oil is more apt to collect in a long horizontal suction line of this type, particularly when the compressor is operating a low-temperature cooling system on about 5 in. of vacuum. After the suction line was bracketed up into place, the oil clogging was corrected and normal operation resulted.

The capacity of compressors really cannot be judged without taking into consideration the type of installation in which they are to operate. Under normal operating conditions, a ½-hp. methyl chloride compressor will easily take care of 10 or 12 cooling coils, and yet the writer has seen installations such as bungalow courts where the horizontal tubing runs were very long and a more powerful compressor was required to circulate the refrigerant through the same number of cooling coils which could easily be operated by a ½-hp. compressor under more compact conditions.

The capacity of various types of compressors is largely a matter of judgment and experience, gained from actual service knowledge in the field. When in doubt, the safe procedure is to use a larger compressor, since many jobs that develop trouble are over-loaded.

Importance of Proper Oils

JUST as the science of proper lubrication has had much to do with the development and correct operation of the automobile, so the selection of proper oil has been of utmost importance to the refrigeration industry. Several manufacturers of electric refrigeration equipment have suffered financially by unintentionally using an inferior grade of refrigeration oil in their machines.

In one case which came to the attention of the writer, a manufacturer was put to an expense of over \$300,000 in one year, being forced to send service men all over the United States to re-service machines in the hands of dealers which failed to operate because of inferior oil.

In spite of the bitter lessons learned in the refrigeration industry by the selection of the wrong oils, service men are apt to be careless in purchasing refrigeration oil here and there, with more attention to price than to quality. Refrigeration oil must not only be capable of withstanding low temperatures without thickening, but must also be of such quality as to withstand fairly high temperatures without breaking down or carbonizing. It must be remembered that refrigeration oil, unlike motor oil, is seldom renewed, and must stand up under long service.

Many an old compressor, upon being overhauled, is found to be caked up with carbon deposits to such an extent that its efficiency of operation is definitely impaired. Only recently the writer saw a compressor taken apart after two years of service. The carbon was caked so thickly in the cylinder head and in the tube connecting to the top of the condenser that only a hole of scarcely pencil lead diameter was left for the refrigerant to pass through.

Needless to say, the correct operation and long life of a refrigeration system depend to a great degree upon proper lubrication. Much refrigeration service

trouble, such as stuck valves, clogged screens, retarded circulation, may be traced to the use of an inferior oil.

One reason for the carbonizing of oil—even when good oil is used—is air in the system. The presence of air in a refrigeration system causes high head pressure and consequently high compressor heat. This heat, combined with the oxidizing effect of the air, causes the oil to break down more rapidly and to carbonize.

The small amount of moisture found in air leakage into a system is usually absorbed by the refrigerant, unless, of course, the air is saturated with moisture. Therefore, service men sometimes neglect to purge for air after connecting up a system, allowing the compressor to pound along with higher than normal head pressure as long as operation is maintained.

If air is present in a system it will usually form in a pocket at the top of the condenser and may easily be purged off through the valve at the compressor head. Needless to say, this should always be done when a system is connected up and put into operation, or when overhauling a system becomes necessary.

The clicking or knocking which sometimes manifests itself when small compressors commence operation with the flooded type system may often be eliminated if the needle valve of the boiler is carefully inspected for leakage. When the needle valve is not properly calibrated, a small amount of the liquid refrigerant may leak into the suction line when the machine is shut down, and be drawn into the crank case where it boils the oil up through the piston head valve into the cylinder when the machine starts up.

This causes a temporary clicking or pounding of the discharge valve until the surplus oil is pumped out and the system balances up again.

Manually operated valves of the siphon type may be by-passed into a suction line in order to defrost any one coil in a multiple system independently of the rest. When the valve is turned off the boiling of the refrigerant in the coil will, of course, cease through a balancing of the high and low side pressures, and the coil will defrost.

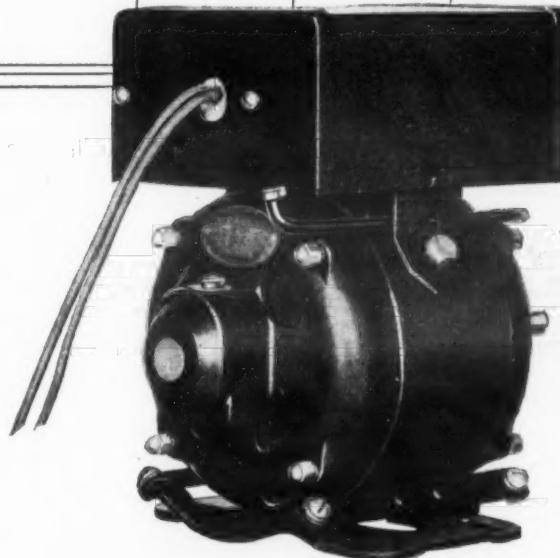
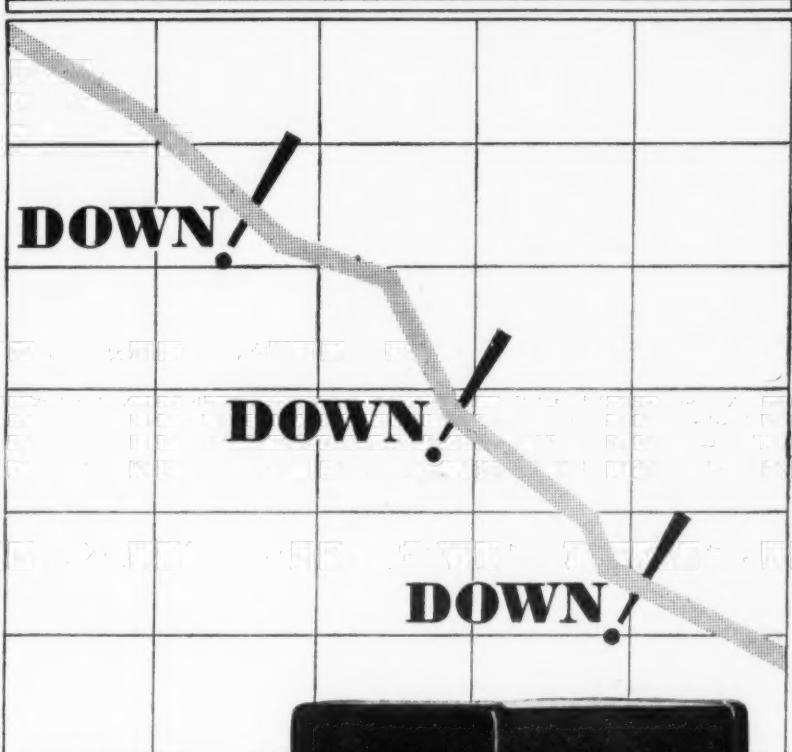
One factor which must be watched, however, in installing such defrosting valves is that if too many of the coils in such a flooded multiple system are turned off for defrosting at the same time, the compressor will short cycle on the much reduced load, and liquid refrigerant may be pumped over into the suction line causing a back frost to the crank case.

Regulating Temperatures Manually

It is not very satisfactory to use manually operated shut off valves in the suction line to raise coil temperatures. It is true that by partially closing such valves, the coil temperature will be raised by an increased back pressure in the suction line between the valve and the freezing coil, but such an expedient merely retards the normal circulation of the system, sometimes causing oil accumulation in the valved coils, and unbalances the system to the extent of causing short cycling and back frosting on the suction line from the remaining coils.

Such a reference applies, of course, only to flooded multiple systems. For the same reason, the old expedient of "pinching down" the suction line with a pair of pliers to raise coil temperatures, should be discouraged among service men who aim at balanced and correct operation.

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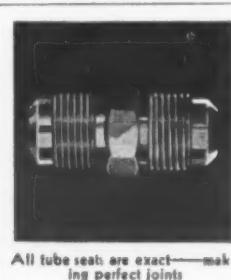
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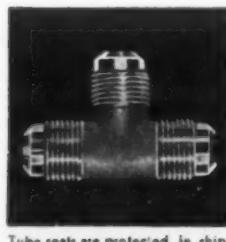
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Review of Latest Patents Issued in

ISSUED OCTOBER 13

1,826,704. ICE CAN FILLER. Thomas J. Byrne, Tulsa, Okla. Filed May 17, 1928. Serial No. 278,441. 4 Claims. (Cl. 221—112.)

1. In an ice can filler, a measuring chamber including upper and lower horizontal walls provided respectively with an inlet and an outlet, and side walls extended above said upper wall to form an auxiliary chamber, said upper wall having a stem receiving aperture, an intake valve housing communicating with the auxiliary chamber, a valve in said chamber subject to pressure of liquid flowing through the housing, a valve controlling said measuring chamber inlet, a valve controlling said outlet having a stem extending through said aperture in the upper horizontal wall, a conical guard for said stem aperture mounted on said wall, common means for actuating the inlet and outlet valves, and intake-valve control means including a float and means for adjusting the weight of the float to the pressure of liquid against said intake valve.

1,826,781. FREEZING DEVICE. James J. Hayes, Louisville, Ky., assignor, by direct and mesne assignments, to Ruth S. Hayes, Louisville, Ky. Filed July 3, 1930. Serial No. 465,517. 2 Claims. (Cl. 62—75.)

1. In a freezing device: a flat-bottom, deep receptacle made of moisture-proof material of low thermal conductivity and designed to slip-fit into the lower half of the frost chamber of a refrigerator and adapted to hold a freezing compound and to encase a telescoping food vessel; a food vessel adapted to transmit temperatures readily and designed to hold a certain quantity of cream or other food ingredients, and to slip-fit down into said receptacle and rest upon the freezing compound therein; two telescoping companion vessels adapted to transmit temperatures readily, the outer one of which is designed to slip-fit down into said food vessel far enough to rest upon the cream therein, and the inner one of which is designed to telescope into the outer one far enough to rest fully on the bottom thereof, the inner one being adapted to hold a certain quantity of freezing compound spread-out all over its bottom; and a thick lid with a boss handle, designed to slip-fit down into said inner vessel to rest upon the freezing compound therein, said lid being adapted to retard the transmission of varying temperatures through it, substantially as described.

1,826,791. LIQUID COOLING APPARATUS. Herbert C. Kellogg, Detroit Mich., assignor to Liquid Cooler Corporation, De-

troit, Mich., a Corporation of Michigan. Filed Mar. 5, 1929. Serial No. 344,497. 10 Claims. (Cl. 62—7.)

1. In a gas conditioner, a spray chamber having an inlet at one end and an outlet at the other end, means for forcing a current of gas through said chamber, a plurality of pipes extending longitudinally along the sides of said chamber, a plurality of spaced branch pipes carried by said longitudinal pipes, a nozzle carried by each of said branch pipes and arranged to direct a spray of fluid along the sides of said chamber, and means for forcing fluid through said pipes and nozzles, said spray being disposed to deflect said current of gas to traverse a helical path through said chamber.

1,826,966. REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor to Frigidaire Corporation, Dayton, Ohio, a Corporation of Delaware. Filed Nov. 30, 1928. Serial No. 322,748. 11 Claims. (Cl. 137—104.)

1. In an evaporator for refrigerating apparatus, a cylindrical container forming a reservoir for liquid refrigerant having a flange formed out of the body of the container and projecting substantially at right angles to the axis of the container, a ring within the container adjacent the flange, a closure for the container, tension means engaging the closure and ring to clamp the closure to the flange, and a gasket between said flange and said closure, said gasket including a bead and an inwardly extending web, said web being adapted to engage the tension means to space the bead substantially at the outer edge of said flange.

1,826,993. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,570. 5 Claims. (Cl. 62—152.)

1. In a structure of the character described, the combination with a refrigerator car; of a removable bulkhead defining an ice compartment at one end of said car; means providing a support within said ice compartment; and an ice receptacle detachably arranged within said enclosure, said bulkhead being removable to permit application and removal of said ice receptacle with respect to said enclosure.

1,826,839. REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corporation, a Corporation of Delaware. Filed June 30, 1927. Serial No. 202,615. 20 Claims. (Cl. 62—126.)

17. In a refrigerating system of the type having a closed fluid chamber, a valve for controlling the flow of fluid through said chamber, mechanical valve actuating mechanism responsive to the condition of the fluid in said chamber for controlling said valve, said mechanism including a second valve adapted to control the flow of fluid through said chamber.

20. In a refrigerating system in which lubricant and refrigerant are circulated, an evaporator comprising a closed chamber containing a body of liquid including liquid refrigerant and a layer of lubricant floating on the refrigerant, heat conducting means associated with the chamber, the free surface of the liquid body being proportioned with respect to the surface of the heat absorbing means so that violent ebullition of the refrigerant will take place below the free surface of the layer of lubricant during normal operation of the evaporator, and means above the free surface for collecting the lubricant conveyed upwardly with the gaseous refrigerant and for conveying such lubricant out of the chamber.

1,826,931. AIR CONDITIONER. Claude A. Bulkeley, Buffalo, N.Y., assignor to Niagara

1,827,071. MERCURY SWITCH METAL CLIP TYPE. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,567. 11 Claims. (Cl. 200—152.)

1. A mercury switch comprising an outer envelope, a trap of arc-resistant material therein, a body of mercury having a portion confined in said trap and a shiftable portion making and breaking contact with the portion in the trap, and means for holding the trap in position in the envelope including a resilient metallic ring like retaining element tensioned to frictionally engage the envelope and cooperable with the trap.

1,827,072. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

1. A mercury switch including an outer envelope, an inner protective structure of molded arc-resistant material and having a peripheral portion engaged with the lower portion only of the inner wall of the outer envelope, a resilient ring like metallic retaining element interposed between and cooperating with the upper portion of the envelope and with the upper portion of the protective structure to complete the hold-

1,827,073. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,568. 8 Claims. (Cl. 200—152.)

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1,827,074. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,075. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,076. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,079. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,080. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,081. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,084. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,085. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—152.)

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1,827,086. MERCURY SWITCH. Paul K. Cramblet, Milwaukee, Wis., assignor, by mesne assignments, to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a Corporation of Delaware. Filed Nov. 24, 1928. Serial No. 321,569. 8 Claims. (Cl. 200—1

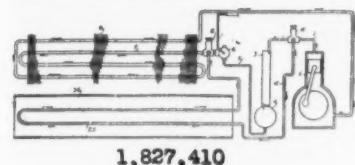
Field of Mechanical Refrigeration

(Continued from Page 10, Column 5)
to hold it in a position where said force does not act thereupon.

1,827,381. TUBING. Harry W. Bundy, Detroit, Mich., assignor, by mesne assignments, to Bundy Tubing Co., Detroit, Mich., a Corporation of Michigan. Filed Nov. 18, 1927. Serial No. 234,088. 4 Claims. (Cl. 137—75.)

1. As a new article of manufacture, a coil bent on a relatively small radius, comprising a thin walled longitudinally fashioned tube of non-corrodible metal covered by a thin strip of metal wound as a helix on said tube with the edges of adjacent convolutions of the helix in substantially abutting relation.

1,827,410. DEFROSTING REFRIGERATION SYSTEM. Virgil P. Warren, Atlanta, Ga. Filed April 18, 1930. Serial No. 445,371. 9 Claims. (Cl. 62—103.)



1. Defrosting refrigeration circulation system including a compressor and a refrigerating coil, a pan underlying said coil, a drain from said pan, and parallel branches between the pressure side of said compressor and said coil, one of said branches including a condenser, and the other of said branches having a portion arranged adjacent the drain of said pan and in heat exchanging relation thereto, and means for selectively determining the path of flow of said refrigerant through one or the other of said branches.

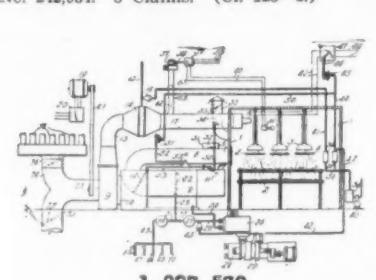
1,827,449. METHOD OF DESIGNATING TEMPERATURE ZONES IN ICE BOXES. Burris D. Wood and Willis William Rodgers, Dallas, Tex. Filed July 15, 1930. Serial No. 468,078. 2 Claims. (Cl. 40—2.)

1. The herein described method which consists initially in predetermining the varying degrees of temperature at different points in said ice box and affixing a label at each of said points designating the temperature and specifying the commodities best suited for the designated temperature.

1,827,480. LIQUEFIED GAS COOLER FOR REFRIGERATING APPARATUS. James Rivers Martin, Winter Haven, Fla., assignor to Henry C. Frierson, Winter Haven, Fla. Filed Oct. 29, 1928. Serial No. 315,751. 2 Claims. (Cl. 257—229.)

1. A liquefied gas cooler for freezing apparatus comprising a cylindrical member closed fluid tight at both ends, a liquefied gas coil located within said cylinder and having its ends extending through the ends of the cylinder, means for supplying liquid gas to said coil, means for supplying expanded gas from a cooling coil to said cylinder, said means comprising a pipe extending longitudinally through said coil, and a plurality of baffle plates carried by said pipe within said coil for distributing the expanded gas in regard to the coil.

1,827,530. METHOD AND APPARATUS FOR PRODUCING ARTIFICIAL CLIMATES. Joseph M. Le Grand, Newark, N. J., assignor to Carrier Engineering Corp., Newark, N. J. Filed Dec. 27, 1927. Serial No. 242,954. 5 Claims. (Cl. 128—1.)



1. A process for conditioning substances independently of local climatic conditions which comprises enclosing said substances, subjecting said enclosed substances to gas conditioned as to temperature and relative humidity, subjecting said substance to light rays, and varying the intensity of the light rays with variations in relative humidity of said gas.

1,827,629. REFRIGERATING APPARATUS FOR PACKAGE GOODS. Clarence W. Vogt, Louisville, Ky., assignor to Vogt Instant Freezers, Inc., Louisville, Ky., a Corporation of Delaware. Filed Sept. 13, 1930. Serial No. 481,614. 20 Claims. (Cl. 62—104.)

1. An apparatus for freezing packaged goods, including a pair of annular coaxially spaced relatively movable refrigerated conveyors adapted to receive the packages therebetween.

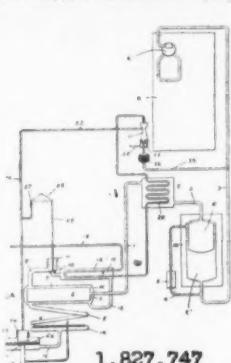
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1,827,741. EXPANSION CHAMBER FOR REFRIGERATING APPARATUS. Charles F. Gardner, New Carlisle, Ohio, assignor, by mesne assignments, to Frigidaire Corp., Day-

ton, Ohio, a Corporation of Delaware. Filed July 22, 1925. Serial No. 45,395. Renewed Jan. 20, 1928. 17 Claims. (Cl. 62—126.)

16. In a mechanical refrigerating apparatus of the compressor-condenser-flooded-expander type, an expansion unit comprising a plurality of hollow sections for liquid refrigerant, the interiors of said sections being connected in operative communication, one of said sections having a liquid refrigerant inlet, control valve means operatively positioned within said section for controlling the flow of liquid refrigerant to said expansion unit, and a suction outlet for said sections arranged to permit the discharge of refrigerant in gaseous form only from said unit.

1,827,747. REFRIGERATING APPARATUS. Charles F. Henney, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a Corporation of Delaware. Filed Feb. 27, 1930. Serial No. 431,735. 8 Claims. (Cl. 62—5.)



1. Refrigerating apparatus including a first circuit containing an evaporator and means for supplying liquid refrigerant to and withdrawing gaseous refrigerant from said evaporator, a second circuit including a condenser and a secondary evaporator, said secondary evaporator positioned above the bottom of said condenser and said first evaporator arranged to cool said condenser, means for storing up heat while said first named means withdraws refrigerant vapor from said first named evaporator and means operative substantially at the conclusion of said withdrawing period for permitting the liquid refrigerant in said condenser to withdraw heat from said heat storage means whereby a portion of said liquid refrigerant is vaporized and the remainder is forced upwardly into said secondary evaporator, due to said vaporization.

1,827,749. REFRIGERATOR. Elmer L. Horlacher, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Oct. 29, 1926. Serial No. 145,078. 4 Claims. (Cl. 62—1.)

4. In a refrigerator of the character described, the combination with a cabinet: a platform supporting a motor having a pulley drivably connected with a compressor also supported on the platform; cushioning devices supporting the platform on the cabinet; resilient means for resting upon the platform for resisting movement of the platform away from the cabinet; condenser in rigid relation to said cabinet and a flexible connection for interchange of refrigerant between said condenser and said compressor.

1,827,750. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 25, 1927. Serial No. 235,667. 11 Claims. (Cl. 62—101.)

4. Refrigerating apparatus comprising in combination two series of interspersed coils surrounding a space, one of said coils having refrigerant therein, and the other having a freezing hold-over therein, said hold-over comprising a cryohydrate composition.

1,827,751. REFRIGERATING APPARATUS. Lloyd M. Keighley, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 10, 1926. Serial No. 147,550. 12 Claims. (Cl. 62—126.)

9. A cooling unit for mechanical refrigerators comprising an ice tray support, conduits each including opposed branch portions in intimate thermal contact with the opposite sides of the support and a connecting yoke portion, said yoke including a tortuous portion of flexible material lying alongside said support.

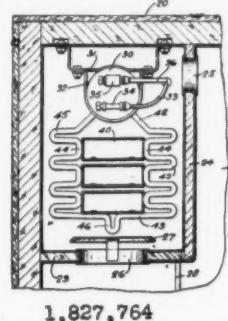
1,827,752. REFRIGERATING APPARATUS. Lloyd M. Keighley, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 10, 1926. Serial No. 147,551. 12 Claims. (Cl. 62—126.)

5. A cooling unit for mechanical refrigerators adapted to be placed in the path of medium to be cooled thereby, said cooling unit comprising opposed duct loops having tortuous branches cooperating to provide a freezing zone and other branches extending outwardly of the freezing zone in the path of the circulating medium and so constructed and arranged as to provide a shield of heat exchange material for shielding the freezing zone from the action of the circulating medium.

1,827,753. REFRIGERATING APPARATUS. Lloyd M. Keighley, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 10, 1926. Serial No. 147,551. 12 Claims. (Cl. 62—126.)

1. An apparatus for freezing packaged goods, including a pair of annular coaxially spaced relatively movable refrigerated conveyors adapted to receive the packages therebetween.

by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Feb. 24, 1927. Serial No. 170,612. 20 Claims. (Cl. 62—126.)



1,827,764

19. In a refrigerating apparatus, a cooling unit adapted to be placed in the path of cooling medium to be cooled, said cooling unit comprising a header, ducts connected with the header, said ducts being of serpentine fashion and arranged in opposed rows extending horizontally, the loops of the serpentine of one row extending toward but spaced from the loops of the serpentine of another row providing a horizontally elongated refrigerating zone between the rows.

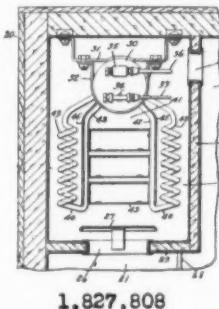
1,827,769. REFRIGERATING APPARATUS. Otto M. Summers, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Oct. 31, 1927. Serial No. 299,900. 15 Claims. (Cl. 62—126.)

1. An elevator directly exposed to air flowing thereover for cooling the same, comprising in combination, an elongated horizontal header and looped conduit means for circulating refrigerant extending laterally from the header and forming an elongated horizontal enclosure for an ice-making container substantially within the height of the header.

1,827,807. REFRIGERATING APPARATUS. Ralph H. Chilton, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 18, 1926. Serial No. 149,105. 13 Claims. (Cl. 62—126.)

11. A cooling unit for mechanical refrigerators comprising a plurality of aligned ducts each having an upright portion and a loop, the upright portion of one duct being connected in series circuit relation with the loop of the same duct.

1,827,808. REFRIGERATING APPARATUS. Ralph H. Chilton, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 18, 1926. Serial No. 149,106. 10 Claims. (Cl. 62—126.)



1,827,808

2. A cooling unit for mechanical refrigerators adapted to be placed in the path of medium to be cooled thereby, said cooling unit including ducts, said ducts having a portion arranged to provide a freezing zone, and another portion arranged to provide a cooling zone, the material of the second-mentioned portion being tortuous and lying spaced from the freezing zone in the path of the circulating medium and so constructed and arranged as to provide a shield of heat exchange material for shielding the freezing zone from the action of the circulating medium.

1,827,809. REFRIGERATING APPARATUS. Theodore L. Chisholm, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Jan. 31, 1927. Serial No. 164,746. 18 Claims. (Cl. 62—126.)

16. A cooling unit for refrigerating apparatus comprising a header and a plurality of rows of ducts extending therefrom, portions of the heat absorbing surfaces of the ducts in one or more of the rows being relatively closely spaced from one another and provide a freezing zone adapted to receive an ice tray and portions of the heat

absorbing surface of the ducts in one or more other rows providing a cooling zone, said last ducts lying outwardly of the freezing zone and being relatively widely spaced from one another.

1,828,815. REFRIGERATING APPARATUS. Harry B. Hull, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 20, 1926. Serial No. 149,760. 8 Claims. (Cl. 62—126.)

3. A cooling unit for mechanical refrigerators adapted to be placed in the path of a cooling medium to be cooled thereby, said cooling unit comprising a header and a plurality of duct means connected with the header in parallel circuit relation, said means including a portion providing a freezing zone, and another portion lying outwardly of the second-mentioned portion lying outwardly of the freezing zone in the path of the circulating medium, and means thermally connected with the header and providing a shield for shielding the freezing zone from the action of the circulating medium.

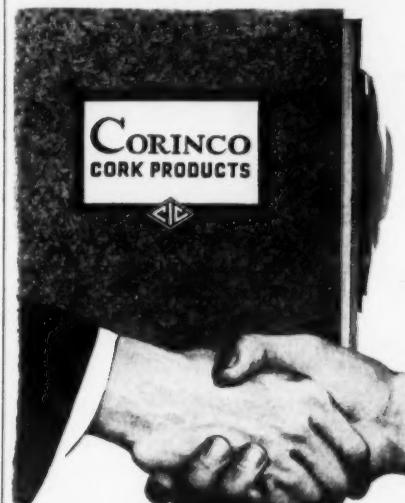
1,827,819. REFRIGERATING APPARATUS. Jesse G. King, Dayton, Ohio, assignor, by mesne assignments, to Frigidaire Corp., a Corporation of Delaware. Filed Nov. 20, 1926. Serial No. 149,745. 10 Claims. (Cl. 62—126.)

7. A cooling unit for mechanical refrigerators adapted to be placed in the path of the circulating medium to be cooled thereby, said cooling unit comprising a header, an inner refrigerant containing section including a set of loops connected with the header and providing a freezing zone adapted to receive an elongated ice tray, a second refrigerant containing section including a set of loops providing a cooling zone, said second set of loops being connected with the header in parallel circuit relation with the first set and lying outwardly of the freezing zone in the path of the circulating medium, said second-mentioned conduit means surrounding the freezing zone and constructed and arranged to shield the freezing zone, throughout the length thereof, from the action of the circulating medium.

1,827,856. ALTERNATING REFRIGERATION BOTTLED DRINK COOLER. Lee S. Pope, Greensboro, N. C. Filed Oct. 6, 1928. Serial No. 310,781. 3 Claims. (Cl. 62—101.)

3. A refrigerator comprising tanks, refrigerating units for said tanks, and means

(Concluded on Page 12, Column 1)



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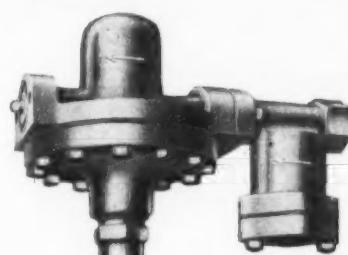
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